NATIONAL PARK SERVICE
EVERGLADES NATIONAL PARK

Cape Sable Plugs Restoration – Phase II
Wetlands/Surface Waters and Mangrove Assessment Report
December 2015

Prepared by: AECOM

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INTRODUCTION

AECOM Technical Services, Inc. (AECOM) was contracted by the National Park Service (NPS) to conduct wetland delineations and mangrove surveys/assessments for the proposed viable alternative plug sites and associated accessways for the Cape Sable Plugs Restoration – Phase II Project at Everglades National Park (ENP).The purpose of this report is to document the results of the wetlands/surface waters surveys.

The wetlands and surface waters delineations were conducted in accordance with the following:

- NPS' *Director's Order (D.O.) 77-1: Wetland Protection* (2011) and its implementing procedures (*NPS Procedural Manual 77-1*);
- The *US Army Corps of Engineers* (USACE) *Wetland Delineation Manual* (1987) and the approaches outlined in the *Atlantic and Gulf Coastal Plain Region Supplement, Version 2.0* (2010); and
- Chapter 62-340 Florida Administrative Code (F.A.C.), *Delineation of the Landward Extent of Wetlands and Surface Waters*.

In association with the wetland delineation, a Uniform Mitigation Assessment Method (UMAM) functional assessment was completed in accordance Chapter 62-345 F.A.C., *UMAM*. The Florida Department of Environmental Protection (FDEP's) UMAM provides a standardized procedure for assessing the ecological functions provided by wetlands and other surface waters, the amount that those functions are reduced by the proposed action, and the amount of mitigation necessary to offset that loss.

Concurrent with the wetland delineations, a survey/assessment of red mangroves (*Rhizophora mangle*) and their associated root systems was conducted for the proposed project areas. Under the Endangered Species Act (ESA), the US Department of Commerce's National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) is responsible for determining whether certain species are threatened or endangered and for designating critical habitat for the conservation of such species. In 2009, NOAA Fisheries designated areas in and around Cape Sable, including the proposed project areas, as Critical Habitat for the federally endangered smalltooth sawfish (*Pristis pectinata*). NOAA Fisheries identified that a key conservation objective for the species is the protection of juvenile nursery areas (i.e., red mangroves) because they provide for predator avoidance and habitat for prey (50 CFR 226).

Under the Magnuson-Stevens Fishery Conservation and Management Act, NOAA Fisheries also identified areas of inundated red mangroves as Essential Fish Habitat (EFH) for the juvenile smalltooth sawfish. EFH is the habitat necessary for a federally managed fish species to successfully complete their life cycle. An objective of the mangrove survey/assessment was to document the approximate coverage of inundated red mangrove prop-roots in order to determine the potential impact to EFH utilized by juvenile smalltooth sawfish.

A second objective of the mangrove survey/assessment was to document the location and aerial foliage coverage of red mangroves, black mangroves (*Avicennia germinans*), and white mangroves (*Laguncularia racemosa*) that may require trimming or removal. During construction, barges may be used to transport materials along the approaches to the proposed construction sites at Raulerson Canal, East Side Creek, House Ditch, and Slagle Ditch. The mangrove canopy or individual limbs may need to be trimmed or removed in order to allow safe passage of the barges and prevent damage to the vessels. The results of the survey may be used to provide notice of intent to the FDEP to use a general permit to trim mangroves (Section 403.9327, Florida Statutes [F.S.]), or to apply for an individual permit to alter, remove, or trim mangroves (Section 403.9328, F.S.).

PROJECT BACKGROUND

Everglades National Park was established in 1947 and is one of 408 units of the National Park System administered by the NPS, US Department of Interior. Historically, the interior wetlands of the Cape Sable region in ENP were isolated from both the Florida Bay and the Gulf of Mexico by a marl ridge known as the Flamingo Embankment[1].

Early in the 20th century, canals were dug through the Marl Ridge in attempts to drain and reclaim the interior marsh areas for development, agriculture, and cattle grazing. These canals opened up the interior wetlands to tidal influence and the inflow of saltwater from the Gulf of Mexico and the Florida Bay. The Middle Cape Canal, the largest canal in the Cape Sable region, is located between the north end of Lake Ingraham and Florida Bay. This canal did not widen appreciably until after the 1935 Labor Day Hurricane, but today the opening is more than 300 hundred feet wide. The East Cape Canal connection to the southern end of Lake Ingraham was completed in the 1920s and the lower portion of the canal, between Florida Bay and the Ingraham Canal, is currently more than 200 hundred feet wide.

Canal construction appears to have had a dramatic effect on the southern portion of the interior of Cape Sable. By 1953, the higher marl areas became colonized by mangroves. According to Wanless and Vlaswinkel (2005), the ecological collapse of the southern interior marsh was a direct result of the draining of the marsh with construction of the canals through the marl ridge; large storm events/hurricanes; and saline intrusion through the constructed canals. In addition, the central and northern interior brackish marsh communities of Cape Sable are interspersed with mangroves and other salt tolerant plant communities.

The canals were subsequently plugged with earthen plugs at the Marl Ridge during the 1950s, but over time most of the earthen plugs have either been breached or severely compromised by the forces of weathering and erosion. Five major ditch/canal plugs are presently known to exist in the Cape Sable region:

- **Homestead Canal Plug** – a 100-foot long earthen plug bounded by sheet pile on each end and reinforced with rip-rap armoring; reconstructed in 2011; structurally stable for an anticipated life of at least 50 years

- **East Cape Extension Canal Plug** – a 100-foot long earthen plug bounded by sheet pile on each end and reinforced with rip rap armoring; reconstructed in 2011; structurally stable for an anticipated life of at least 50 years

- **House Ditch Plug** – an earthen plug constructed in the 1950s; erosion is presently occurring on the north and south sides of the plug

- **Slagle Ditch Plug** – an earthen plug constructed in the 1950s; erosion is presently occurring on the north side of the plug and potential exists for erosion on the south side of the plug

- **Raulerson Canal Plug** – a former earthen plug has completely failed; erosion is presently occurring along both banks of the canal; debris from the previous plug still exists at the former plug site

Additionally, East Side Creek, a natural waterway in the Cape Sable region, is currently experiencing similar tidal influence and erosional processes as the canals and ditches in the area. The saltwater intrusion via this creek is similarly contributing to the degradation of the interior freshwater and brackish marshes of the Cape Sable region. Based on the available historical evidence, the Park believes that these processes occurring in the waterway may be due, at least in part, to the presence and widening of the human-created canals in the region. Therefore, a plug along this waterway was included for consideration as a potential part of this project.

[1] The terms Flamingo Embankment and Marl Ridge refer to the same topographic high ridge located in the Cape Sable Region of ENP. This ridge is referred to as the Marl Ridge hereafter in this document.

The proposed plug site locations at Raulerson Canal, East Side Creek, House Ditch, and Slagle Ditch are depicted on **Figure 1**.

FIGURE 1 - PROPOSED PLUG SITES LOCATION MAP

WETLANDS/SURFACE WATERS DELINEATION & ASSESSMENT

METHODOLOGY

To determine locations and boundaries of the existing wetlands and surface water communities within and adjacent to the proposed project location sites, available site-specific data was collected and reviewed including:

- US Department of Agriculture (USDA), Natural Resources Conservation Service, Interactive Web Soil Survey (2015)
- US Geological Survey (USGS), 7.5-Minute Series Topographic Quadrangle Map (2008)
- Florida Department of Transportation (FDOT), Florida Land Use, Cover and Forms Classification System (FLUCFCS), 3rd edition (1999)
- US Fish and Wildlife Service (USFWS) Classification of Wetlands and Deepwater Habitats of the United States (1979)
- Aerial photographs of the project area at 1 inch = 150 feet, 1 inch = 200 feet, 1 inch = 250 feet, and 1 inch = 5,000 feet scales (2012 – 2014)
- Florida Geographic Data Library (2015)
- ESRI Data (2015)

Using the above-referenced information, the approximate boundaries of existing wetlands and surface water communities were mapped in GIS on aerial photographs. AECOM project biologists that are familiar with South Florida wetland community types conducted field investigations of the proposed project sites and associated potential helicopter drop areas between May 27 and July 28, 2015. The field investigations delineated and functionally assessed the existing wetlands and surface water communities identified during the desktop data review, as well as areas not previously identified. The composition of plant species was documented for each wetland and surface water community and adjacent upland habitats. Exotic plant infestations, shifts in historical communities, and other disturbances were noted. Wildlife observations and signs of wildlife utilization were also noted.

Following assessment activities, each wetland and surface water community was classified using the FLUCFCS Manual (FDOT, 1999) and the USFWS Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al., 1979). The locations and types of natural communities observed within and adjacent to the proposed project sites are depicted on aerial imagery**.** Field conditions were photo-documented and are provided in **Appendix A**.

Additionally, the function and quality of wetland communities which may be impacted by the proposed project were assessed using the UMAM (FDEP 2004) which was adopted by the South Florida Water Management District (SFWMD) on February 2, 2004 and adopted by the USACE on August 1, 2005. The UMAM provides a standardized procedure for assessing the functions provided by wetlands and other surface waters; the amount that those functions are reduced by a proposed impact; and the amount of mitigation necessary to compensate for that loss in terms of current condition; hydrologic connection; uniqueness; location; fish and wildlife utilization; time lag; and mitigation risk. Impacts to surface water areas with no protected submerged aquatic vegetation typically do not require mitigation; thus, a UMAM analysis was not performed for identified surface waters.

All of the information gathered was compiled into the NPS' Wetlands Statement of Findings (SOF) for the project. For the purpose of this report, only current or existing conditions were qualified. Proposed impacts and mitigation measures will be addressed and qualified in a subsequent Environmental Assessment (EA) and Wetlands SOF.

WETLAND CHARACTERIZATIONS OF THE CAPE SABLE REGION

Most of ENP is prone to frequent and continual flooding due to low elevation, lack of extensive physical relief, and hydrologic inputs (i.e., rainfall, overland sheet flow, tidal fluxes, and direct surface water discharges). The Cape Sable region is multifaceted, encompassing marine and estuarine systems. Saltwater from Florida Bay and the Gulf of Mexico enters the Cape Sable region through a series of canals constructed in the early 20th century, as well as through natural watercourses such as East Side and Little Sable creeks, and House and Slagle Ditches. Saltwater also enters the interior of Cape Sable through Whitewater Bay via Ponce De Leon Bay to the north. In addition, during moderate to high tides, the marl ridge is overtopped and substantial amounts of saltwater from the Gulf of Mexico enter the Cape Sable region. Freshwater is also being lost from the interior of Cape Sable from canals and East Side Creek.

The proposed plug construction sites are a mixture of regularly flooded mangrove wetlands and irregularly flooded mangrove shrub-scrub and coastal batis (non-graminoid) prairie wetlands as well as the open water area of the canals. In the vicinity of the existing marl ridge, local estuarine wetlands are contiguous with the greater estuarine wetland system of the greater Cape Sable area. The primary functions of these wetlands include surface and subsurface water storage, support of the biogeochemical processes (nutrient cycling, peat accretion, etc.), support of characteristic plant community, and providing suitable habitat for native fish and wildlife. These functions appear to be retained, although degraded, following the excavation of the canals in the early 20th century.

The majority of land in the Cape Sable region is classified as wetland, an integral component of the ENP landscape. Wetlands of the greater Everglades ecosystem include a mosaic of vegetation types, including tree-islands, mangrove forests, cypress swamps, marl prairies, sawgrass marshes, and sloughs. **Figure 2** depicts the wetland classification of the Cape Sable region, based upon available National Wetlands Inventory (NWI) Geographic Information System (GIS) data layers (USFWS, 2014).

In the following descriptions, land cover comprising the anticipated “impact areas” and adjacent areas was classified into categories using the FLUCFCS, which is a hierarchical system that groups similar types of land cover. Additionally, land cover type also was categorized using the NWI codes, a series of letter and number codes that were developed to adapt the national wetland classification system to aerial imagery. The alpha-numeric codes correspond to the classification nomenclature that best describes the habitat. Consistent application of these classification systems and codes combined with field investigations and aerial imagery review facilitate the analysis of growth patterns, the determination of wetland types and locations, and the evaluation of potential wetlands losses or impacts.

The “E2” wetlands are estuarine intertidal wetlands. The “SS3” wetlands are broad-leaved evergreen scrub-shrub wetlands, consisting mainly of mangrove vegetation that has experienced stunted growth due to the effect of hurricanes. The “EM” wetlands consist of emergent coastal prairie and salt marsh vegetation such as saltwort (*Batis maritima*) and other salt-tolerant plants and marsh grasses, primarily *Spartina* species. Florida Bay is classified as an estuarine subtidal habitat with aquatic beds of unknown substrate characteristics.

Prior to canal construction, the interior of Cape Sable consisted predominantly of freshwater marsh intermixed with brackish marsh. The marl ridge provided a continuous boundary between Florida Bay/Gulf of Mexico and the interior areas of Cape Sable, specifically from Flamingo west to Clubhouse Beach where the marl ridge turned northwestward and continued north of Lake Ingraham and emerged at the coast north of North Cape and Little Sable Creek.

Along the Gulf of Mexico, the Cape Sable coast consists of a mangrove wetland with a series of penetrating tidal creeks running inland for approximately 1-2 miles. These penetrating tidal creeks extend along the north side of Cape Sable but fade as the shoreline turns southeastward along the shore of Whitewater Bay. The mangrove coastline typically yielded to inland brackish marsh wetlands within 1,000 feet at most.

Canal construction appears to have had a dramatic effect on the southern portion of the interior of Cape Sable. By 1953, mangroves had begun to colonize the higher marl areas. According to Wanless and Vlaswinkel (2005), the ecological collapse of the southern interior marsh was a direct result of the draining of the freshwater from the construction of the canals through the Marl Ridge; large storm events/hurricanes; and saline intrusion through the constructed canals. In addition, the central and northern interior marsh communities of Cape Sable are interspersed with mangroves and other marine community vegetation.

Peat soil has been lost and freshwater marsh communities have been replaced by open water and other more saline communities. The open canals and at least one “natural” tributary, East Side Creek, transport sediment and organic material from interior marshes through East Cape Canal, and eventually into Lake Ingraham and Florida Bay.

Detailed characterizations of wetland/surface water areas located within and adjacent to the Cape Sable region are as follows:

Southern Interior Wetlands

NWI: *USFWS – E2SS3U (Estuarine, Intertidal, Scrub-Shrub, Broad-Leaved Evergreen, Unknown Tidal) and E2USM (Estuarine, Intertidal, Unconsolidated Shore, Irregularly Exposed)*

FLUCFCS: *542/612/512 - Southern Interior Marshes/ Embayment not opening directly into Gulf of Mexico-Mangrove Swamp/Streams & Waterways*

The habitats on the mainland side of the marl ridge are primarily a mosaic of mangrove wetland and numerous shallow bottom subtidal areas of open water. The southern interior of Cape Sable was a continuous marsh with isolated round lakes prior to the construction of the canals which increased saltwater intrusion into the interior. The drainage of freshwater (via the canals) also had an impact. These former freshwater wetlands are separated from the intertidal habitats of Lake Ingraham by the marl ridge. Freshwater was also lost via the canals. In addition to periodic overtopping of the marl ridge, the interior wetland area receives saltwater input via canals as previously discussed. Further north, the central and northern interior areas contain a mosaic of brackish, marine, and hyper-saline flora although most of the interior is dominated by red mangrove interspersed with open water. In addition to mangroves, common flora in the central and northern interior areas includes cordgrass (*Spartina* spp.) and sawgrass (*Cladium jamaicense*).

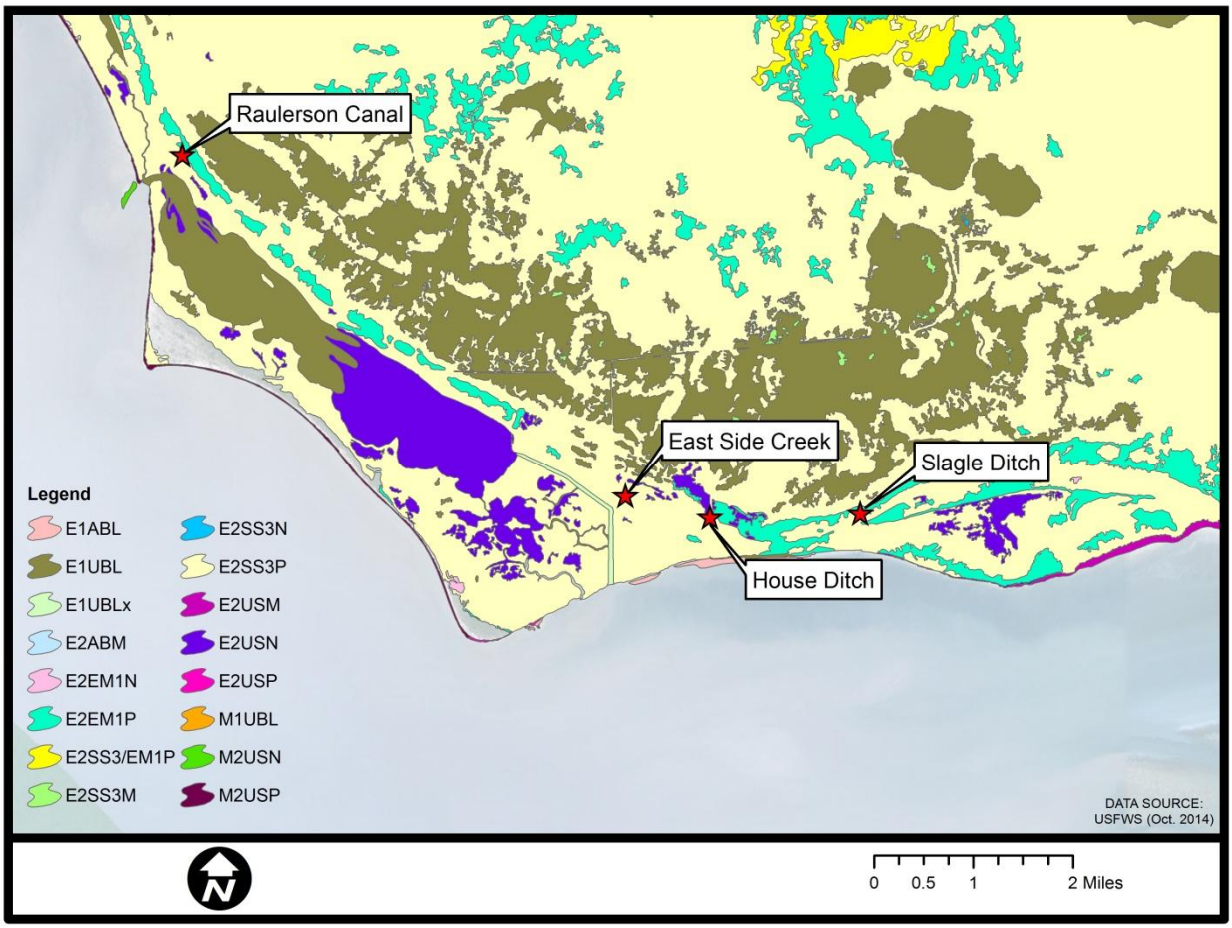

FIGURE 2 - NATIONAL WETLANDS INVENTORY MAP OF THE CAPE SABLE REGION

Florida Bay

NWI: *USFWS – E1UBL (Estuarine, Subtidal, Unconsolidated Bottom, Subtidal) and E1ABL (Estuarine, Subtidal, Aquatic Bed, Subtidal)*

FLUCFCS: *541 – Embayment opening directly into Gulf of Mexico*

Florida Bay is located at the southernmost tip of the Florida Peninsula between the mainland and the Florida Keys, most of which lies within the boundaries of ENP. Florida Bay is classified as an estuarine subtidal habitat with aquatic beds of unknown substrate characteristics. However, the bay is characterized by many shallow interconnected basins, with an average depth of only three feet. It is an area where freshwater from the everglades mixes with the salty waters from the Gulf of Mexico to form an estuary with interconnected basins, grassy mud banks, seagrass flats, and mangrove islands that serve as nesting, nursery, and/or feeding grounds for a host of marine animals.

Lake Ingraham

NWI: *USFWS – E2USM/N (Estuarine, Intertidal, Unconsolidated Shore, Irregularly Exposed / Regularly Flooded)*

FLUCFCS: *541/651 – Embayment opening directly into Gulf of Mexico / Tidal Flats*

Lake Ingraham is a shallow, intertidal embayment approximately 5 miles in length by 0.5 mile in width with the long axis trending northwest/southeast. This shallow embayment (3-5 feet in water depth) is separated from the

marine waters of the Gulf of Mexico and Florida Bay by a narrow carbonate sand beach ridge and barrier beach, and from the interior Cape Sable complex of mangrove wetlands and numerous shallow subtidal open water areas by an emergent calcium carbonate marl ridge. Several manmade canals provide access to the lake and function as tidal inlets enhancing tidal flow into and out of the lake. The expansion of the East Cape, Middle Cape, and Homestead Canals has exacerbated sediment deposition in the interior marshes and is converting Lake Ingraham into a tidal mud flat.

Today, the flood tidal delta in Lake Ingraham forms a sediment body over 2.5 miles over the entire width of the lake, is 2 - 3 feet thick, and resembles an emergent system at low tide (Wanless and Vlaswinkel 2005). The sedimentation allows for the growth of abundant surface algal and cyanobacterial mats on the substrate as well as providing suitable habitat for the colonization of red mangrove (*Rhizophora mangle*) seedlings.

WETLAND CHARACTERIZATIONS OF PROPOSED PROJECT AREAS

The following wetland characterizations serve to classify the current or existing condition(s) of the wetland and/or surface water systems that may be impacted by proposed construction activities at the viable plug sites and accessways. The locations and types of natural communities observed within and adjacent to the proposed plug construction sites are as follows:

Raulerson Canal

NWI: *USFWS – E2FO3P (Estuarine, Intertidal, Forested, Broad-Leaved Evergreen, Irregularly Flooded), E2SS3P (Estuarine, Intertidal, Scrub-Shrub, Broad-Leaved Evergreen, Irregularly Flooded), and E1UBLx (Estuarine, Subtidal, Unconsolidated Bottom, Subtidal, Excavated)* (**Figure 3**)

FLUCFCS: *612/512 – Mangrove Swamps / Streams and Waterways* (**Figure 4**)

The Raulerson Canal was constructed in the 1920s and cuts across the marl ridge from the interior wetlands to connect to a naturally formed tidal creek (Little Sable Creek) entering the northwestern extent of Lake Ingraham at the extensively eroded Middle Cape Canal. The permanently inundated Raulerson Canal was originally excavated for development purposes. The substrate at the proposed plug site on the excavated canal is comprised of a sequence of fine carbonate mud, marl, underlain by a relatively narrow peat layer followed by limestone bedrock. No submerged vegetation exists within the waterway itself, possibly due to considerable turbidity resulting from the interaction of strong tidal currents and suspended fine particles originating from the marl substrate.

The banks along the approach to the proposed plug site are comprised primarily of regularly flooded mangrove wetlands dominated by red mangrove, black mangrove, and white mangrove with a sparse to dense groundcover dominated by saltwort. The south side of the canal at the proposed plug site is characterized by a regularly to irregularly inundated dense ground cover of saltwort with an open canopy black mangrove woodland on the west transitioning eastward to a saltwort community with widely spaced black mangrove and white mangrove shrubs. The north side of the canal at the proposed plug site is characterized by a regularly to irregularly inundated open canopy woodland dominated by black mangrove with a lesser component of white mangrove and red mangrove and a moderate to dense ground cover of saltwort.

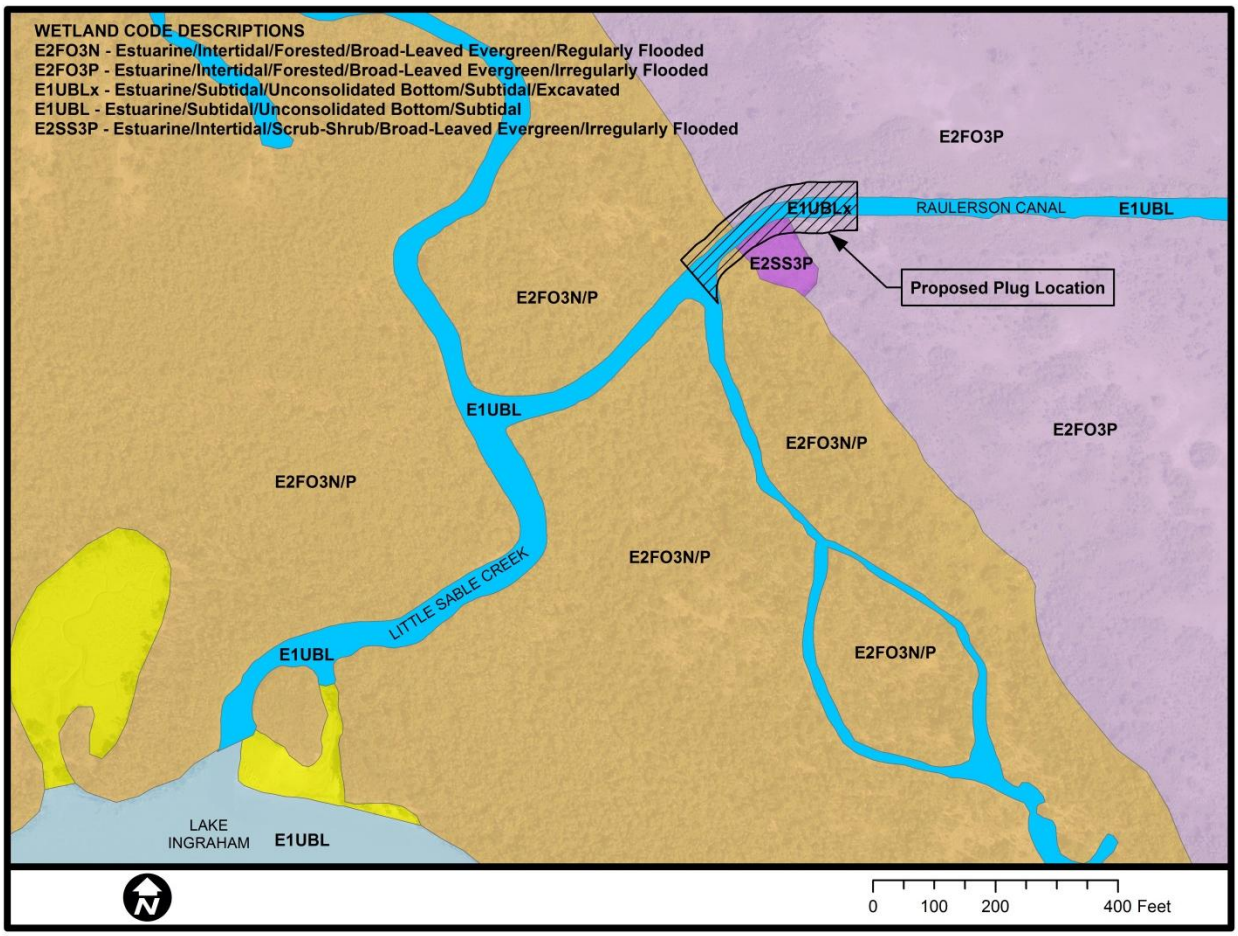

FIGURE 3 - RAULERSON CANAL NWI MAP

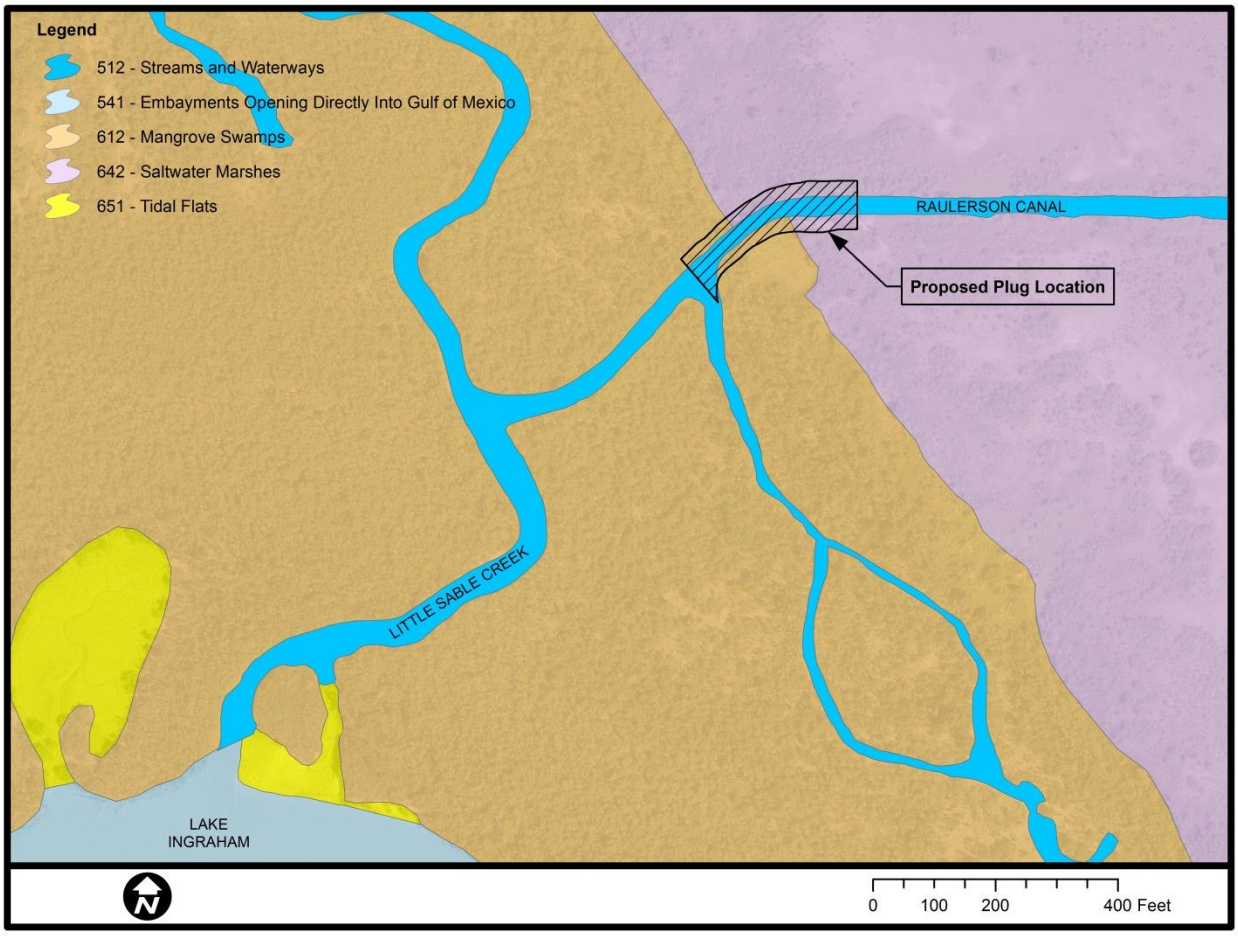

FIGURE 4 - RAULERSON CANAL FLUCFCS MAP

East Side Creek

NWI: *USFWS – E2FO3N (Estuarine, Intertidal, Forested, Broad-Leaved Evergreen, Regularly Flooded) and E1UBL (Estuarine, Subtidal, Unconsolidated Bottom, Subtidal)* (**Figure 5**)

FLUCFCS: *612/512 – Mangrove Swamps / Streams and Waterways* (**Figure 6**)

East Side Creek is a tidal creek that formed off the lower East Cape Canal in the 1960s after Hurricane Donna. This feature has extended northward across the marl ridge barrier into the southern interior wetlands. The East Side Creek exhibits a strong tidal flow and, according to aerial photography, is widening rapidly and conveying significant volumes of sediment into and out of the interior. The substrate at the proposed plug site is comprised of a sequence of fine carbonate mud, marl, underlain by a relatively narrow peat layer followed by limestone bedrock. No submerged vegetation exists within the waterway itself, possibly due to considerable turbidity resulting from the interaction of strong tidal currents and suspended fine particles originating from the marl substrate. The banks of the approach to the proposed plug site are comprised primarily of regularly flooded mangrove wetlands dominated by red mangrove with black mangrove and white mangrove with a sparse to dense groundcover dominated by saltwort. The vegetation of the east and west sides of the creek at the proposed plug site is characterized as regularly inundated woodland dominated by red mangrove with a lesser component of black mangrove and white mangrove. Saltwort is the dominant component of the generally sparse ground cover.

FIGURE 5 - EAST SIDE CREEK NWI MAP

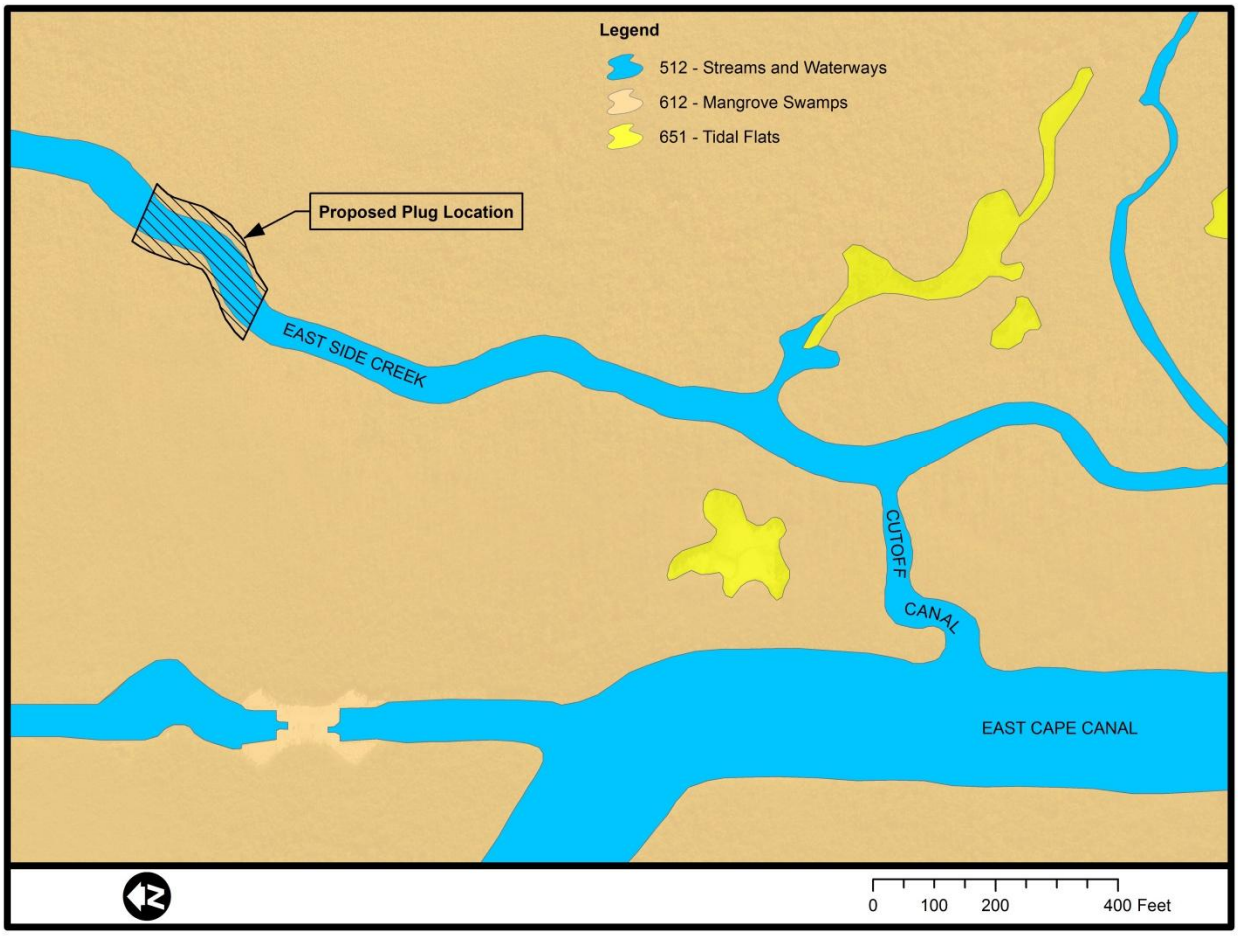

FIGURE 6 - EAST SIDE CREEK FLUCFCS MAP

House Ditch

NWI: *USFWS – E2FO3N (Estuarine, Intertidal, Forested, Broad-Leaved Evergreen, Regularly Flooded), E2SS3P (Estuarine, Intertidal, Scrub-Shrub, Broad-Leaved Evergreen, Irregularly Flooded), and E1UBLx (Estuarine, Subtidal, Unconsolidated Bottom, Subtidal, Excavated)* (**Figure 7**)

FLUCFCS: *612/512 – Mangrove Swamps / Streams and Waterways* (**Figure 8**)

House Ditch was constructed in the 1920s and cuts across the marl ridge from the interior wetlands to connect to Florida Bay. The ditch was originally excavated for development purposes. The substrate at the 40-foot by 40-foot proposed plug site is partially composed of fill material previously used for the construction of the slightly elevated Old Ingraham Highway in the 1920s which bisects the alignment of House Ditch. The underlying substrate consists of a sequence of fine carbonate mud, marl, underlain by a relatively narrow peat layer followed by limestone bedrock. South of the elevated remnant of the Old Ingraham Highway, the narrow, regularly inundated ditch is overgrown with red mangroves and their associated prop roots along with black mangroves.

The House Ditch alignment north of the Old Ingraham Highway consists of a relatively wide expanse of open water bordered primarily by black mangroves and saltwort. No submerged vegetation was observed in this system. The elevated remnant of the Old Ingraham Highway is vegetated primarily with non-wetland species. The woody component is dominated by saffron plum (*Sideroxylon celastrinum*) along with limber caper (*Capparis flexuosa*) and buttonwood (*Conocarpus erectus*). Common ground cover species include Indian hemp (*Sida rhombifolia*), sleepy morning (*Waltheria indica*), sensitive pea (*Chamaecrista nictitans*), and scorpion's-tail (*Heliotropium angiospermum*).

The proposed location for a potential 80-foot by 80-foot helicopter drop area, identified approximately 150 feet north-northwest of the proposed plug site, was composed of a regularly to irregularly inundated mosaic of non-vegetated marl flats and saltwort prairie. Widely-spaced shrub-size black mangroves are present. The area between the proposed plug site and the potential helicopter drop area consists primarily of black mangrove scrub-shrub with a dense ground cover of saltwort.

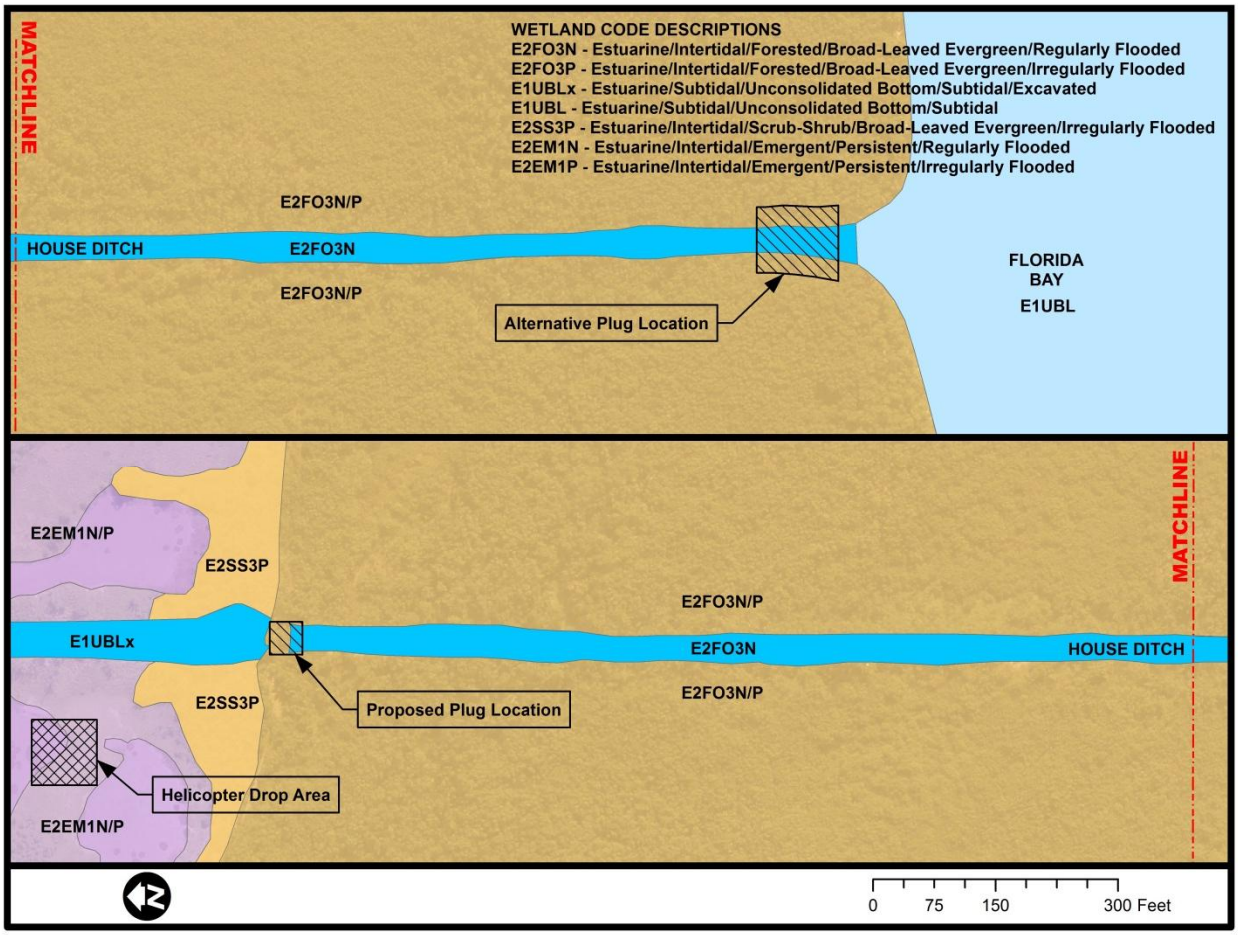

FIGURE 7 - HOUSE DITCH NWI MAP

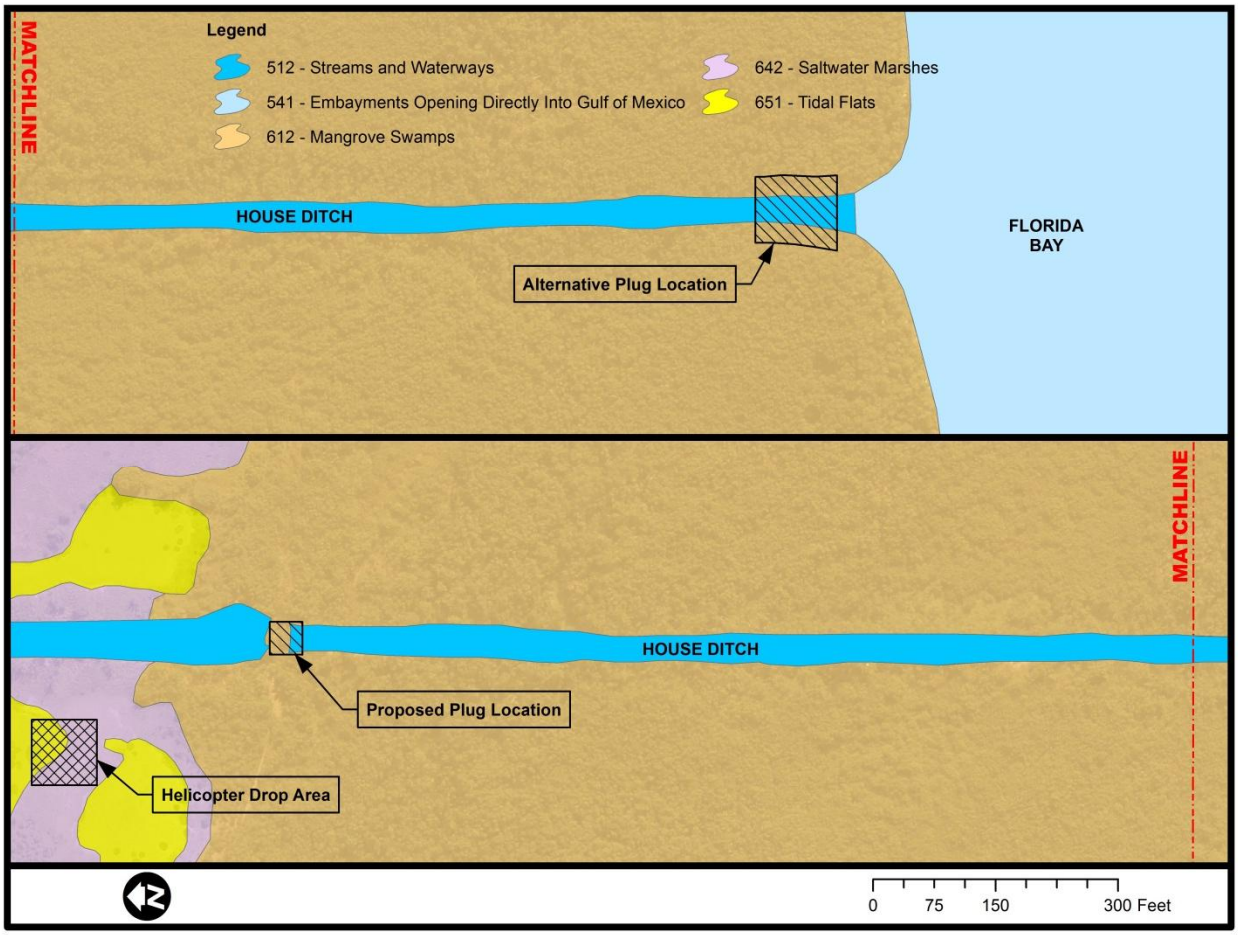

FIGURE 8 - HOUSE DITCH FLUCFCS MAP

Slagle Ditch

NWI: *USFWS – E2FO3N (Estuarine, Intertidal, Forested, Broad-Leaved Evergreen, Regularly Flooded), E2SS3P (Estuarine, Intertidal, Scrub-Shrub, Broad-Leaved Evergreen, Irregularly Flooded), and E1UBLx (Estuarine, Subtidal, Unconsolidated Bottom, Subtidal, Excavated)* (**Figure 9**)

FLUCFCS: *612/512 – Mangrove Swamps / Streams and Waterways* (**Figure 10**)

Slagle Ditch was constructed in the 1920s and cuts across the marl ridge from the interior wetlands to connect to Florida Bay. The ditch was originally excavated for development purposes. The substrate at the 40-foot by 40-foot proposed plug site is partially composed of fill material that was used for the construction of the slightly elevated Old Ingraham Highway in the 1920s, which bisects the alignment of the Slagle Ditch. The underlying substrate consists of a sequence of fine carbonate mud, marl, underlain by a relatively narrow peat layer followed by limestone bedrock. South of the elevated remnant of the Old Ingraham Highway, the narrow, regularly inundated ditch is overgrown with red mangroves and their associated prop roots.

The Slagle Ditch alignment north of the Old Ingraham Highway consists of open water bordered primarily by black mangroves and saltwort with occasional white mangroves and red mangroves interspersed. No submerged vegetation was observed in this system. The slightly elevated remnant of the Old Ingraham Highway is vegetated with a mix of wetland and non-wetland species. Common tree and shrub species include buttonwood, saffron plum, catclaw blackbead (*Pithecellobium unguis-cati*), limber caper, gray knicker (*Caesalpinia bonduc*), and white indigoberry (*Randia aculeata*). Common ground cover species include saltwort, sea blite (*Suaeda linearis*), common wireweed, bushy seaside oxeye (*Borrichia frutescens*), perennial glasswort (*Sarcocornia ambigua*), saltgrass (*Distichlis spicata*), and bladdermallow (*Herissantia crispa*).

A potential 80-foot by 80-foot helicopter drop area, identified approximately 150 feet north-northwest of the proposed plug site, was composed of a regularly to irregularly inundated saltwort prairie with widely spaced black mangrove shrubs. The area between the proposed plug site and the potential helicopter drop area consists primarily of saltwort prairie transitioning southward to black mangrove scrub-shrub with a dense ground cover of saltwort The potential sites identified in the 2012 Feasibility Study were selected during a desktop analysis. However, after 2015 field surveys verified current field conditions it was determined that site presented in this report was environmentally preferred and would avoid and minimize potential impacts to Park resources.

A potential 4-foot wide access trail was identified between the proposed plug site and an unnamed tidal creek that may provide foot-access to the head of the trail (just east of Slagle Ditch). The trail may be used to transport construction materials to the proposed plug site from limits of barge access. This trail traverses a red mangrove forested community near the unnamed creek through a mosaic of black mangrove scrub-shrub communities, saltwort prairie, and buttonwood dominated areas.

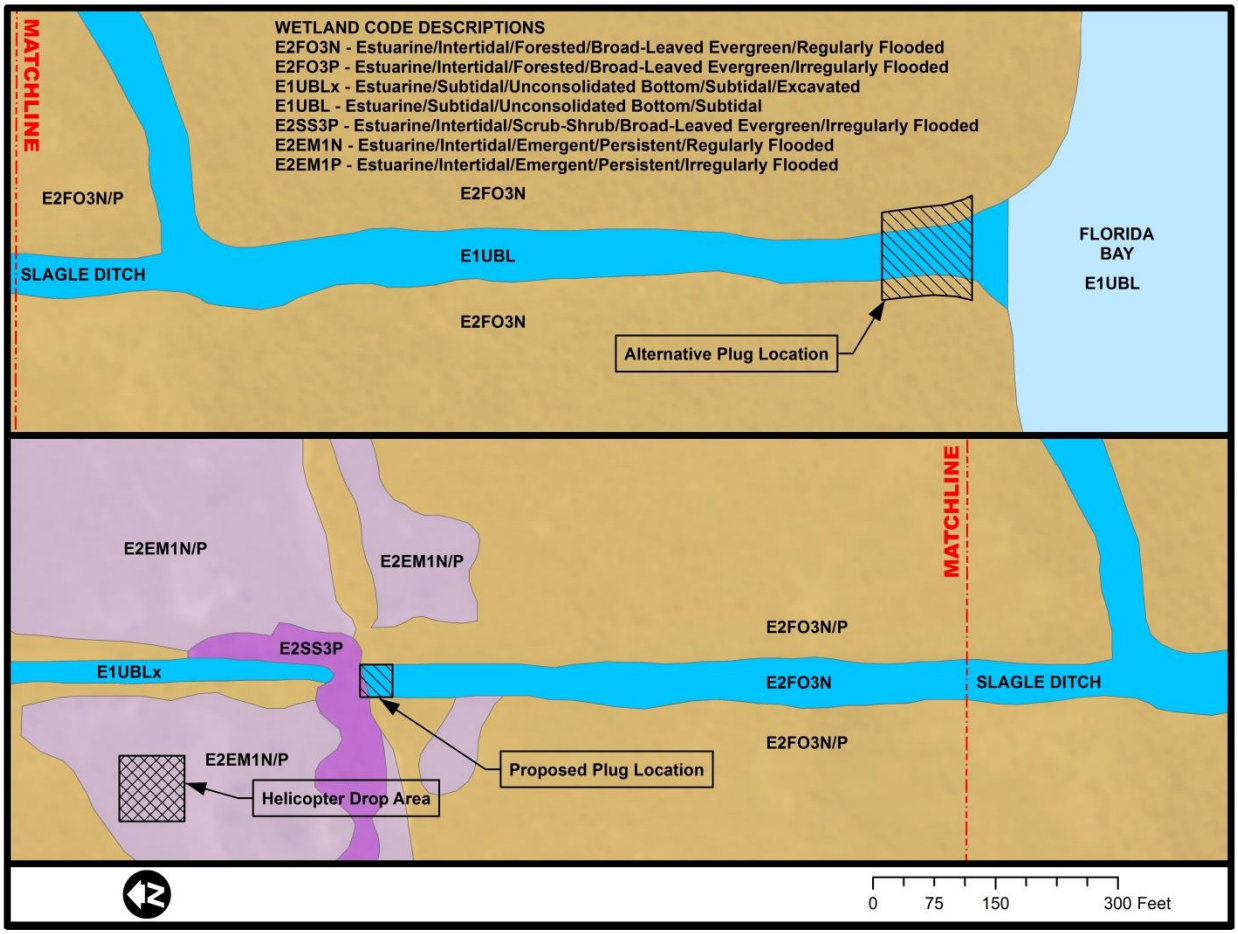

FIGURE 9 - SLAGLE DITCH NWI MAP

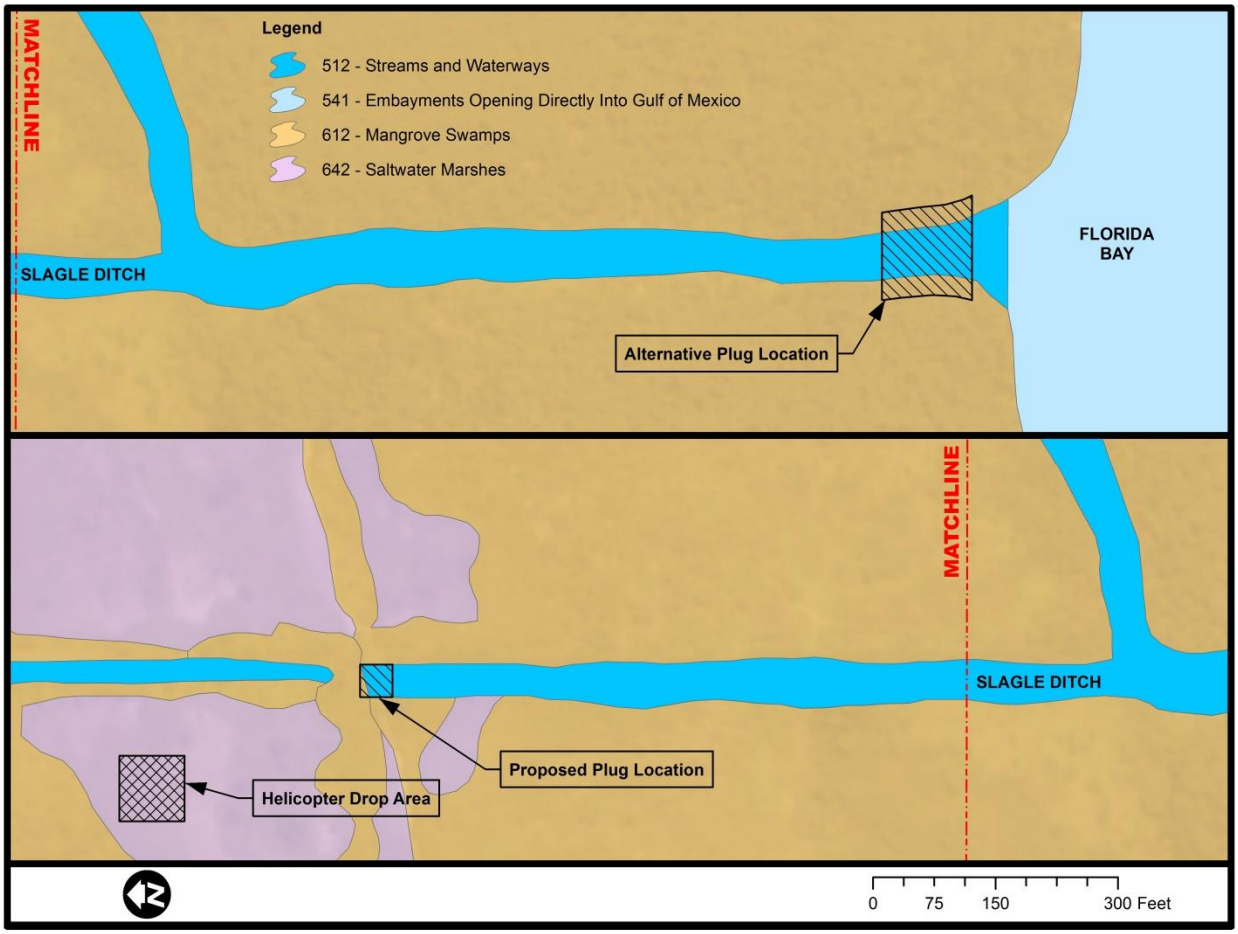

FIGURE 10 - SLAGLE DITCH FLUCFCS MAP

UMAM FUNCTIONAL ASSESSMENT

The wetlands located within and in close proximity to the proposed viable alternative plug construction sites that may be affected by construction include a mixture of regularly flooded mangrove wetlands and irregularly flooded mangrove shrub-scrub and coastal prairie wetlands. These wetlands are part of and contiguous with the estuarine wetland system of the greater Cape Sable region in the vicinity of the existing marl ridge. The primary functions of these wetlands include surface and subsurface water storage, support of the biogeochemical processes (nutrient cycling, peat accretion, etc.), support of characteristic plant community, and providing suitable habitat for native fish and wildlife. These functions appear to be retained, although degraded, following excavation of the existing canals/ditches.

Per Chapter 62-345 F.A.C., a functional analysis of the wetland areas that may be impacted was conducted using the UMAM assessment. As previously discussed, the UMAM provides a standardized procedure for assessing the functions provided by wetlands and other surface waters; the amount that those functions are reduced by a proposed impact; and the amount of mitigation necessary to compensate for that loss in terms of current condition; hydrologic connection; uniqueness; location; fish and wildlife utilization; time lag; and mitigation risk.

Impacts to surface water areas with no protected submerged aquatic vegetation typically do not require mitigation; thus, a UMAM analysis was not performed for impacts to the waterway itself.

At this time, only an assessment of current or existing conditions was performed averaging the wetland functionality scores for the three wetland indicators, “Location and Landscape Support”, “Water Environment”, and “Community Structure”. A complete and comprehensive UMAM assessment and analysis, including permanent and temporary impacts, derivation of delta and determining functional loss associated with the proposed project sites, time lag, mitigation risk, etc. will be provided subsequently as part of the EA.

A summary of the results of the existing conditions UMAM assessment (wetland functionality scoring) is provided in **Table 1**. UMAM assessment forms for each potentially affected wetland (i.e., viable alternative plug construction sites) are provided in **Appendix B**. On the UMAM forms, “Current” indicates the functional value of the assessment area based upon existing conditions per the three indicators of wetland function (location and landscape support, water environment and community structure) scored to the extent that they indicate the ecological value of the assessment area. Scores per each category range from ten to zero based upon reasonable scientific judgment. A score of ten indicates an optimal level whereas a score of zero indicates a severely diminished or negligible level. The “Current” summary score is determined by summing the scores for each of the indicators and dividing that value by 30 to yield a number between zero and one.

UMAM functional wetland scoring is based upon what is considered “suitable” for the type of wetland or surface water body assessed. UMAM scores were determined for each potentially affected wetland area, as well as for the collective Cape Sable southern interior wetlands as this region will be receiving direct benefits resulting from the project. The area and may also serve as mitigation for any potential adverse impacts, if needed. UMAM functional wetland scores ranged from maximum score of 0.7667 for the southern interior wetlands of the Cape Sable area (**Figure 11**) to minimum scores of 0.6667 for the various proposed viable alternative plug site locations (**Figures 12-15** and **Table 1**). The range of “functionality” falls within the moderate quality range (i.e., between 0.50 and 0.79). Wetlands assigned UMAM scores less than 0.50 are typically highly disturbed and have limited wetland functions. Wetlands assigned UMAM scores greater than 0.79 are typically high quality wetlands with pristine wetland functions.

Table 1 – Existing Wetland / Surface Water Communities

Wetland Location	USFWS/ NWI Wetland Type	Location & Landscape Support Score	Water Environment Score	Community Structure Score	Total UMAM Score
Cape Sable Project Area(s) / Southern Interior Wetlands (**Figures 2 and 11**)	E2SS3U / E2USM	8	8	7	0.7667
Raulerson Canal Proposed Plug Site - Location 2 (**Figures 3 and 12**)	E2FO3P, E2SS3P, E1UBLx	8	6	6	0.6667
East Side Creek Proposed Plug Site - Location 4 (**Figures 5 and 13**)	E2FO3N, E1UBL	8	6	6	0.6667
House Ditch Proposed Plug Site at Coastal Prairie Trail (aka Old Ingraham Hwy) (**Figures 7 and 14**)	E2FO3N, E2SS3P, E1UBLx	8	6	6	0.6667
House Ditch Proposed Plug Site at Florida Bay (**Figures 7 and 14**)	E1UBL, E2FO3N, E2FO3N/P	8	6	6	0.6667
House Ditch Proposed Helicopter Drop Area (**Figures 7 and 14**)	E2EM1N/P	8	7	7	0.7333
Slagle Ditch Proposed Plug Site at Coastal Prairie Trail (**Figures 9 and 15**)	E2FO3N, E2SS3P, E1UBLx	8	6	6	0.6667
Slagle Ditch Proposed Plug Site at Florida Bay (**Figures 9 and 15**)	E1UBL, E2FO3N, E2FO3N/P	8	6	6	0.6667
Slagle Ditch Proposed Helicopter Drop Area (**Figures 9 and 15**)	E2EM1N/P	8	7	7	0.7333

FIGURE 11 – SOUTHERN INTERIOR WETLANDS UMAM MAP

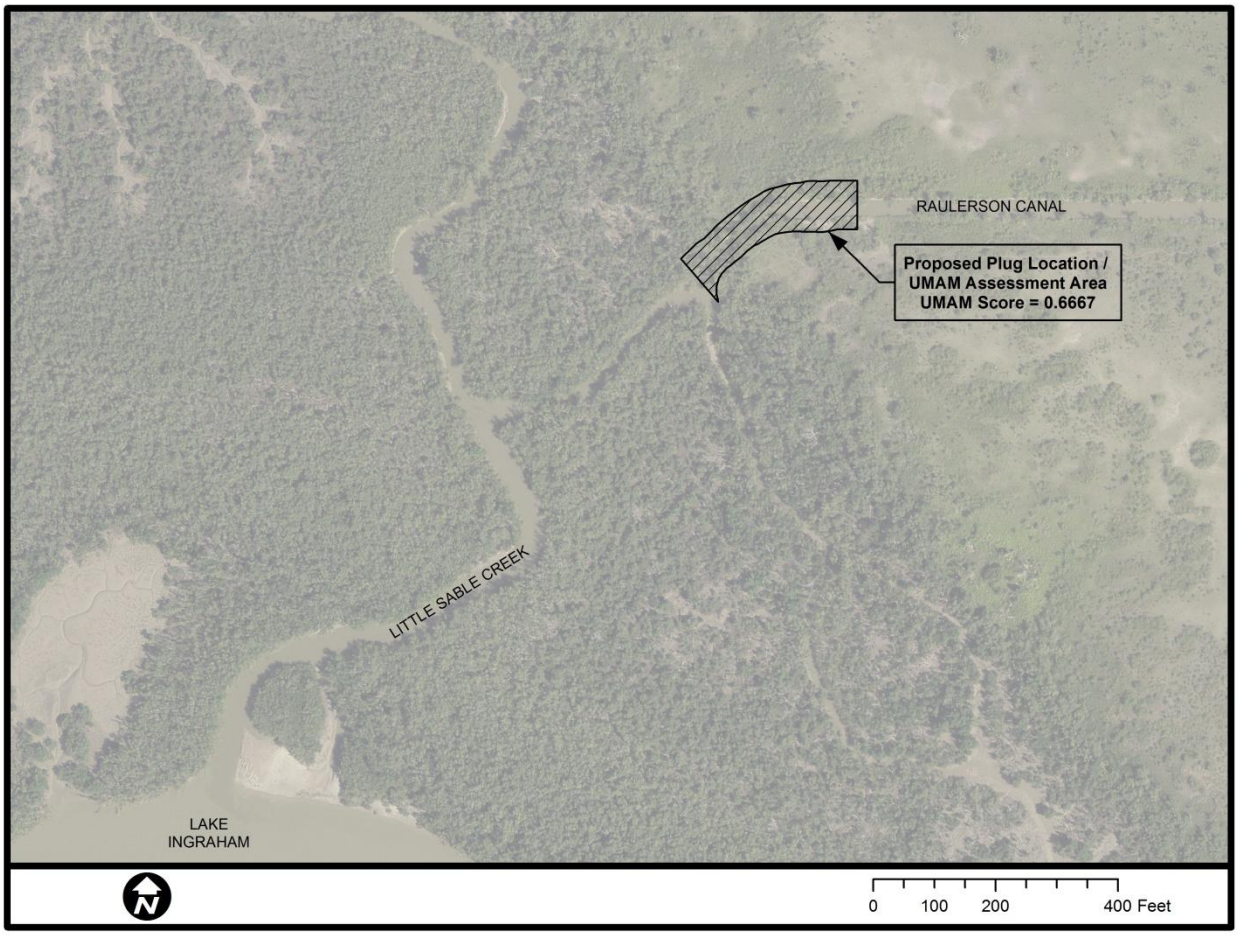

FIGURE 12 – RAULERSON CANAL UMAM MAP

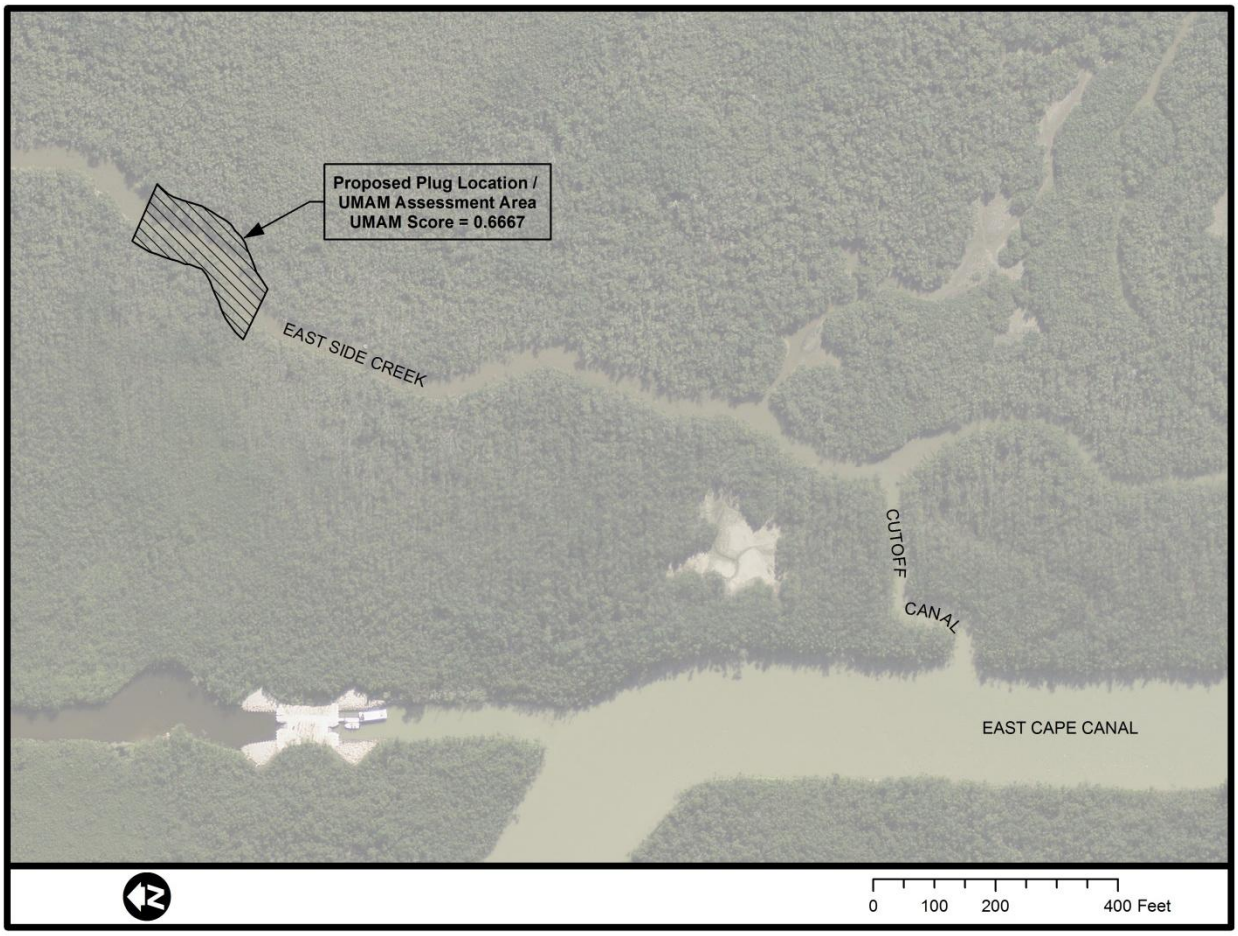

FIGURE 13 – EAST SIDE CREEK UMAM MAP

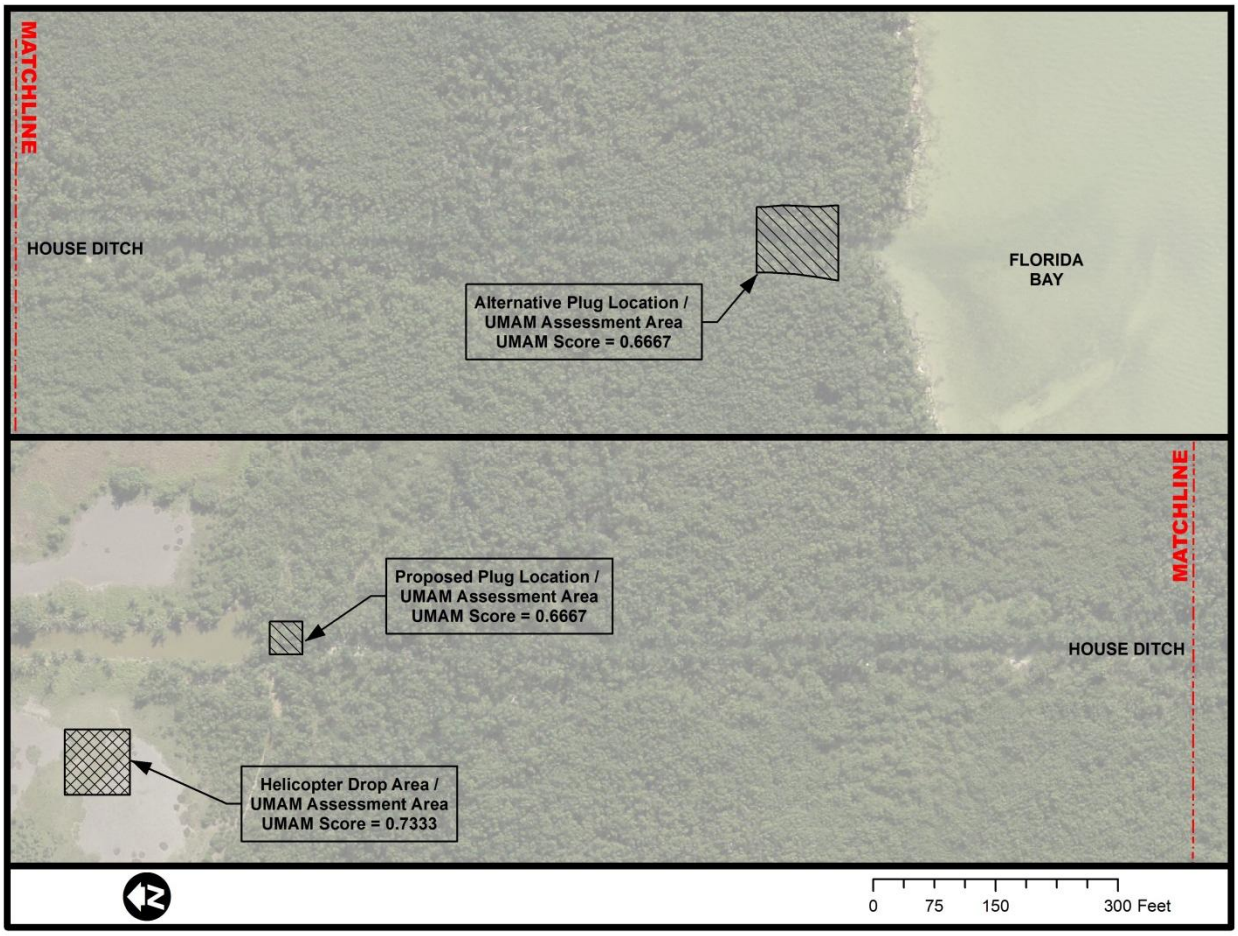

FIGURE 14 – HOUSE DITCH UMAM MAP

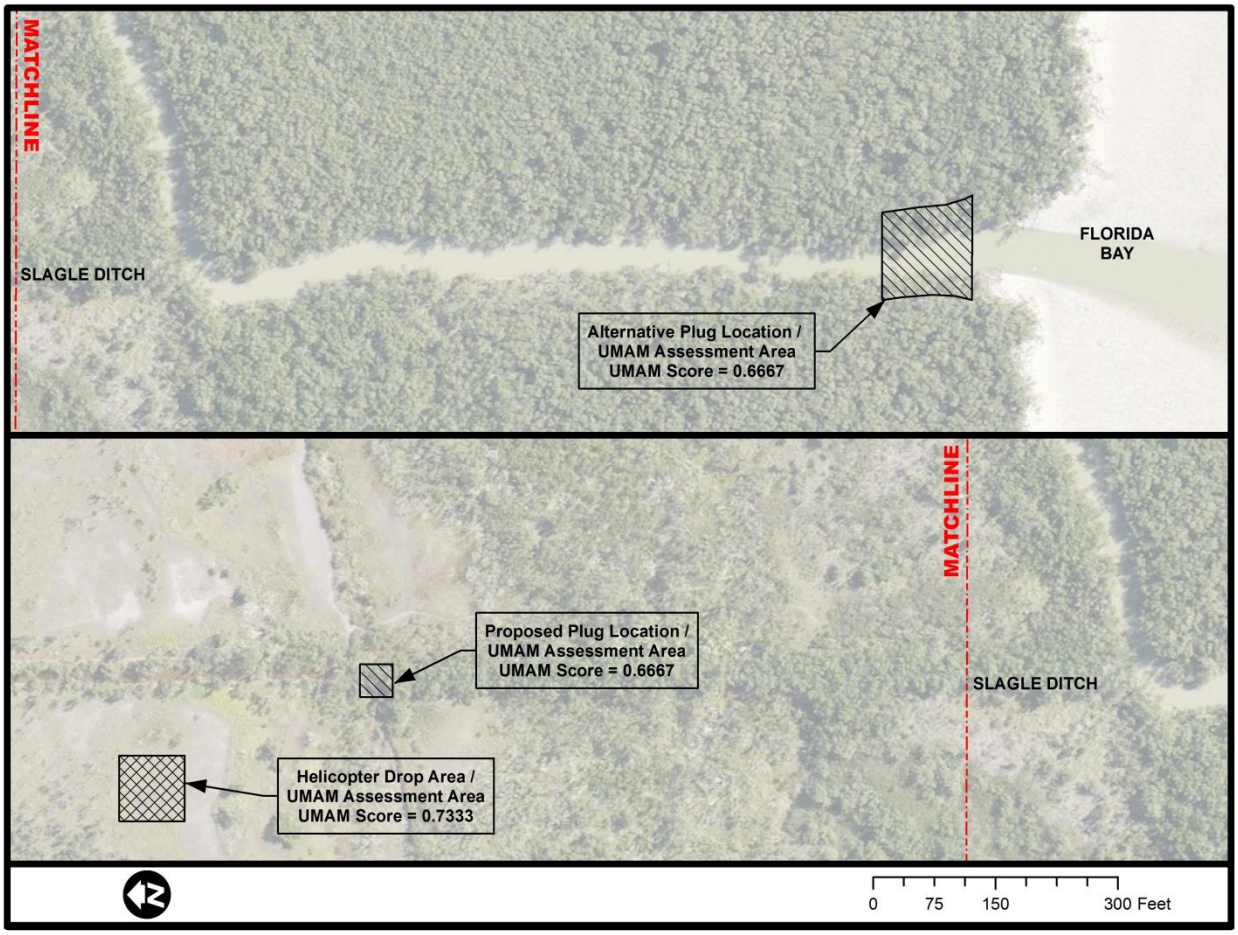

FIGURE 15 – SLAGLE DITCH UMAM MAP

MANGROVE SURVEY / ASSESSMENT

METHODOLOGY

A mangrove survey/assessment was conducted at the proposed viable alternative plug sites and associated accessways for Raulerson Canal, East Side Creek, House Ditch, and Slagle Ditch. The in-field mangrove survey/assessment was conducted from May 27 to July 28, 2015. Weather conditions during the survey ranged from clear skies to overcast and intermittent precipitation. AECOM biologists accessed these remote sites using a shallow draft vessel.

As previously discussed, a survey/assessment of red mangroves and their associated prop root systems was conducted within the footprints of the proposed viable alternative plug sites and staging areas (where applicable) for Raulerson Canal, East Side Creek, House Ditch, and Slagle Ditch. The main purpose of this survey/assessment was to comply with NOAA Fisheries regulation and estimate the potential impact on EFH for the smalltooth sawfish habitat (i.e., submerged red mangrove prop roots).

Red mangroves within each viable alternative plug location were identified, located with a sub-foot accuracy Trimble GPS unit, and mapped on recent GIS aerial photography. Each red mangrove tree identified was hand measured by biologists traversing the area by foot. Approximate prop root aerial coverage (diameter or length-by-width) and approximate average height of the prop roots above the substrate was hand measured. The height of the trees and approximate canopy width were also noted. If trees were intertwined, the combined canopy width and aerial root coverage was recorded.

All protected mangrove species (i.e., red, black, and white mangroves) were surveyed/assessed for potential trimming and/or removal purposes along the approaches (waterways) to Raulerson Canal and East Side Creek as well as any viable waterway approach for House Ditch and Slagle Ditch which have the potential to impede navigation or access to the viable alternative plug sites. Each potentially impeding tree was identified, located with a sub-foot accuracy Trimble GPS unit, and mapped on recent GIS aerial photography. For each of these species, approximate tree height, aerial coverage and the distance or extension over or into the waterway/accessway was recorded. To ensure the most accurate results, the measurements were either taken by biologists on a shallow-draft vessel or on foot from the waterway bank(s). The survey/assessment was used to determine the potential number and area of mangrove trees that would need to be trimmed, altered, or removed and the approximate extent of those activities.

RESULTS

The results of the mangrove survey/ assessment for each of viable alternative plug site locations and associated potential accessways and staging areas (where applicable) are summarized in **Tables 1**-**10** of **Appendix C** and shown on **Figures 16** - **19**. It is important to note that the actual project impacts will likely not include all of the resources identified in this report and should be based on the final design configurations of the plug structures as well as the specific access requirements and/or specifications for the vessels/equipment to be utilized.

In addition, inundation of mangroves along the accessways/waterways is dependent upon the diurnal tidal cycles (two lows and two highs) present in Florida Bay. Utilizing data collected from USGS monitoring stations located in the vicinity of the project along with data from the recent topographic/bathymetric survey, it was determined that complete inundation of the red mangrove prop roots (with an average 10.2 inch prop root height) occurs the majority (<%50) of the time. This data indicates the area may be considered less than optimum habitat for the smalltooth sawfish due to the

limitations on habitat availability; specifically, the periods of inundation, or lack thereof. This will be further evaluated in the EA.

Raulerson Canal

A total of 81 red mangrove trees were identified within the footprint of the viable alternative plug location (one location) with corresponding cumulative prop root aerial coverage of approximately 1,860 square feet. In addition, along the potential accessway (Raulerson Canal) to the viable alternative plug site, a total of 688 mangroves (227 red mangroves, 365 white mangroves, and 96 black mangroves) were identified which may require trimming or removal to facilitate site access (**Figure 16**).

Refer to **Tables 1 and 2** of **Appendix C**. Photographs documenting conditions within the limits of the proposed viable alternative plug site and along the access waterway are provided in the photographic log (**Appendix A)**.

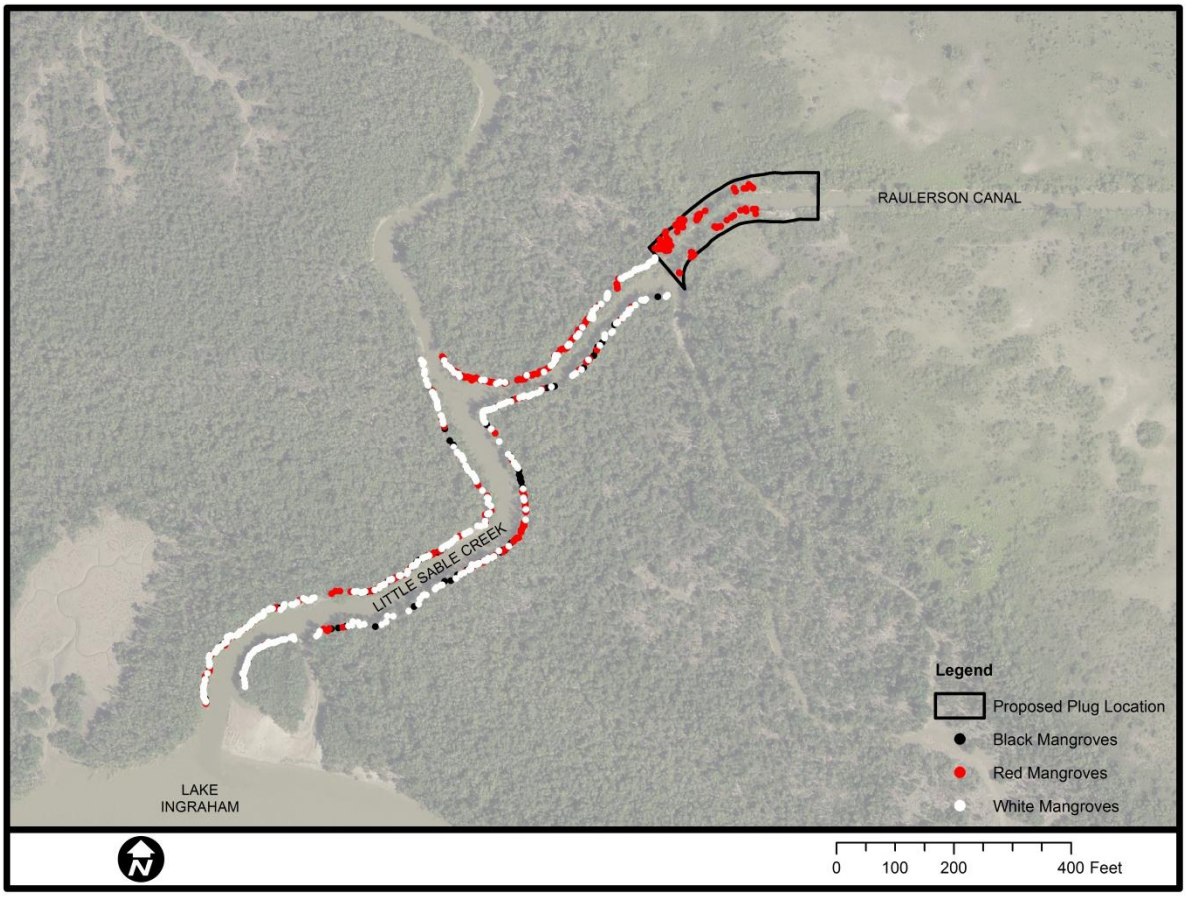

FIGURE 16 - OBSERVED MANGROVES AT PROPOSED PLUG SITE AND ACCESSWAY AT RAULERSON CANAL

East Side Creek

A total of 422 red mangrove trees were identified within the footprint of the viable alternative plug location (one location) with corresponding cumulative prop root aerial coverage of approximately 38,660 square feet. In addition, along the potential accessways (Cutoff Creek and East Side Creek) to the viable alternative plug site, a total of 766 mangroves (426 red mangroves, 277 white mangroves, and 63 black mangroves) were identified which may require trimming or removal to facilitate site access (**Figure 17**).

Refer to **Tables 3 and 4** in **Appendix C** for details. Photographs documenting conditions within the limits of the proposed viable alternative plug site and along the access waterways are provided in the photographic log (**Appendix A)**.

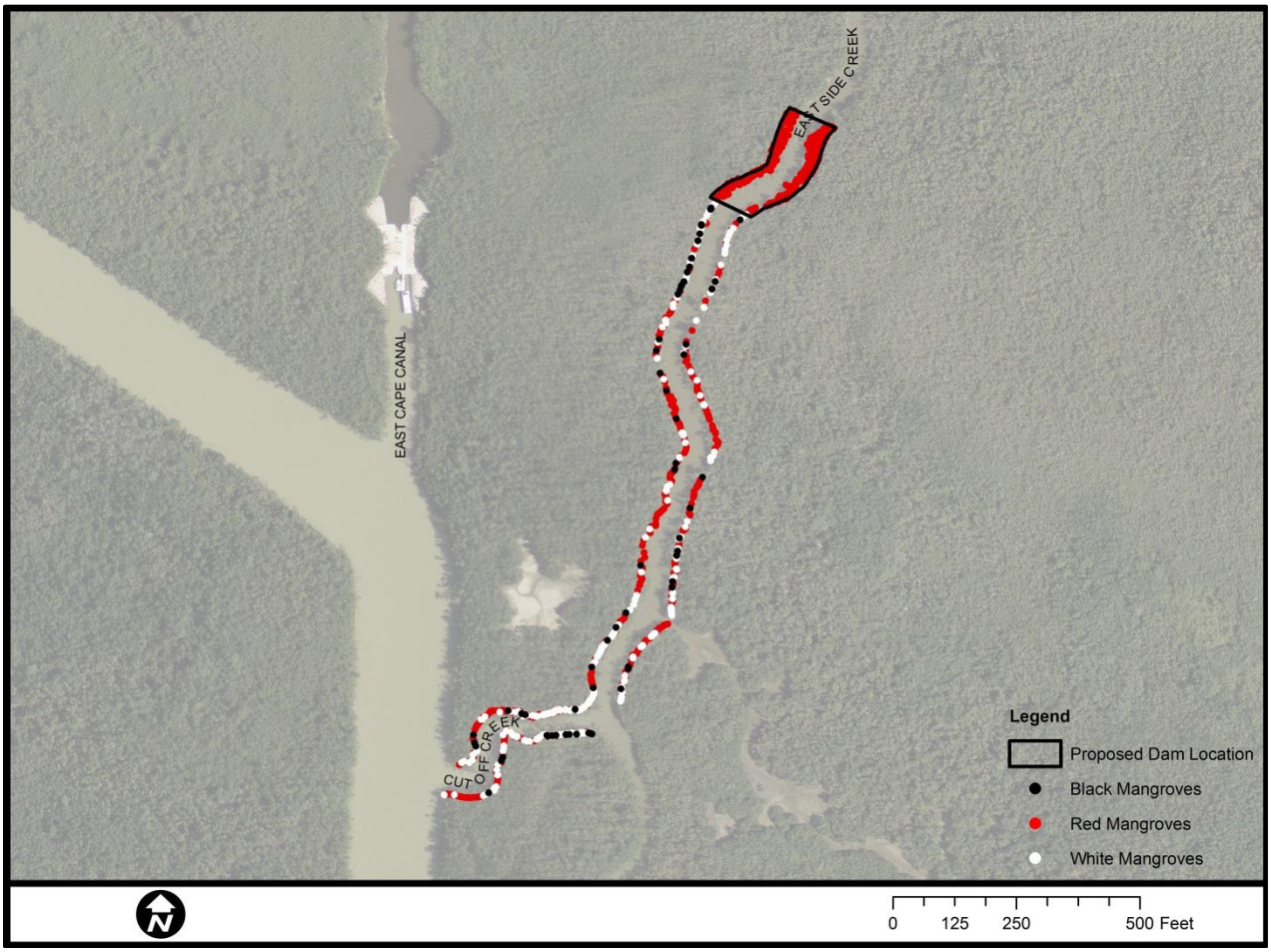

FIGURE 17 - OBSERVED MANGROVES AT PROPOSED PLUG SITE AND ACCESSWAYS AT EAST SIDE CREEK

House Ditch

A total of 5 red mangrove trees were identified within the limits of the viable alternative plug site in the vicinity of the eroded earthen berm along the Old Ingraham Trail with corresponding cumulative prop root coverage of approximately 450 square feet. In addition, a total of 106 red mangrove trees were identified within the limits of the viable alternative plug site in the vicinity of Florida Bay (at the mouth of the House Ditch) with corresponding cumulative prop root coverage of approximately 12,200 square feet (**Figure 18**).

It was determined that dredging would likely result in extensive impacts to protected resources (i.e., mangrove trees). Therefore barge access was not an option for the viable alternative plug site in the vicinity of the eroded earthen berm along the Old Ingraham Trail. A potential barge access route was not surveyed for this alternative as access would likely be obtained through overland routes by helicopter, foot, or other means. For the potential accessway to the proposed viable alternative plug site in the vicinity of Florida Bay, a total of total of 19 mangroves (14 red mangroves, 1 white mangrove, and 4 black mangroves) were identified which may require trimming or removal to facilitate site access. Refer to **Tables 5, 6, and 7 in Appendix C** for details. Photographs documenting conditions within the limits of the proposed viable alternative plug sites and along the access waterway for the viable alternative plug site in the vicinity of Florida Bay are provided in the photographic log (**Appendix A**).

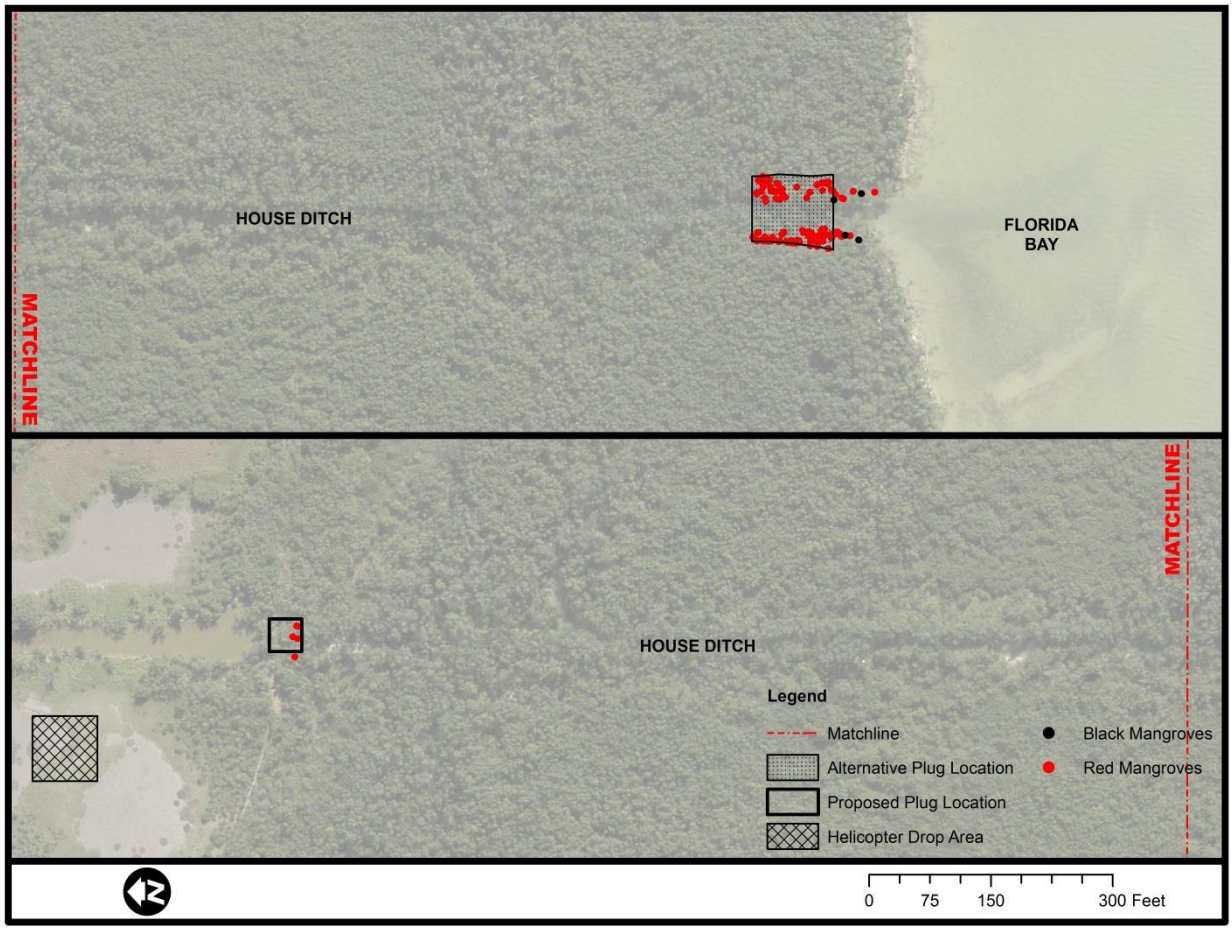

FIGURE 18 - OBSERVED MANGROVES AT HOUSE DITCH

Slagle Ditch

A total of 42 red mangrove trees were identified within the limits of the viable alternative plug site in the vicinity of the eroded earthen berm along the Old Ingraham Trail with corresponding cumulative prop root coverage. In addition, a total of 204 red mangrove trees were identified within the limits of the viable alternative plug site in the vicinity of Florida Bay (at the mouth of the Slagle Ditch) with corresponding cumulative prop root coverage of approximately 6,110 square feet (**Figure 19**).

It was determined that dredging would likely result in extensive impacts to protected resources (i.e., mangrove trees). Therefore barge access was not an option for the viable alternative plug site in the vicinity of the eroded earthen berm along the Old Ingraham Trail. A potential barge access route was not surveyed for this alternative as access would likely be obtained through overland routes by helicopter, foot, or other means. For the potential accessway to the proposed viable alternative plug site in the vicinity of Ingraham Trail (note the water accessway terminates approximately 900 feet south of the proposed plug site), a total of 273 mangroves (167 red mangroves, 66 white mangroves, and 40 black mangroves) were identified which may require trimming or removal to facilitate site access. For the potential accessway to the proposed viable alternative plug site in the vicinity of Florida Bay, a total of total of 9 mangroves (8 red mangroves and 1 white mangrove) were identified which may require trimming or removal to facilitate site access. Refer to **Tables 8, 9, and 10 in Appendix C** for details. Photographs documenting conditions within the limits of the proposed viable alternative plug sites and along the access waterway for the viable alternative plug site in the vicinity of Florida Bay are provided in the photographic log (**Appendix A**).

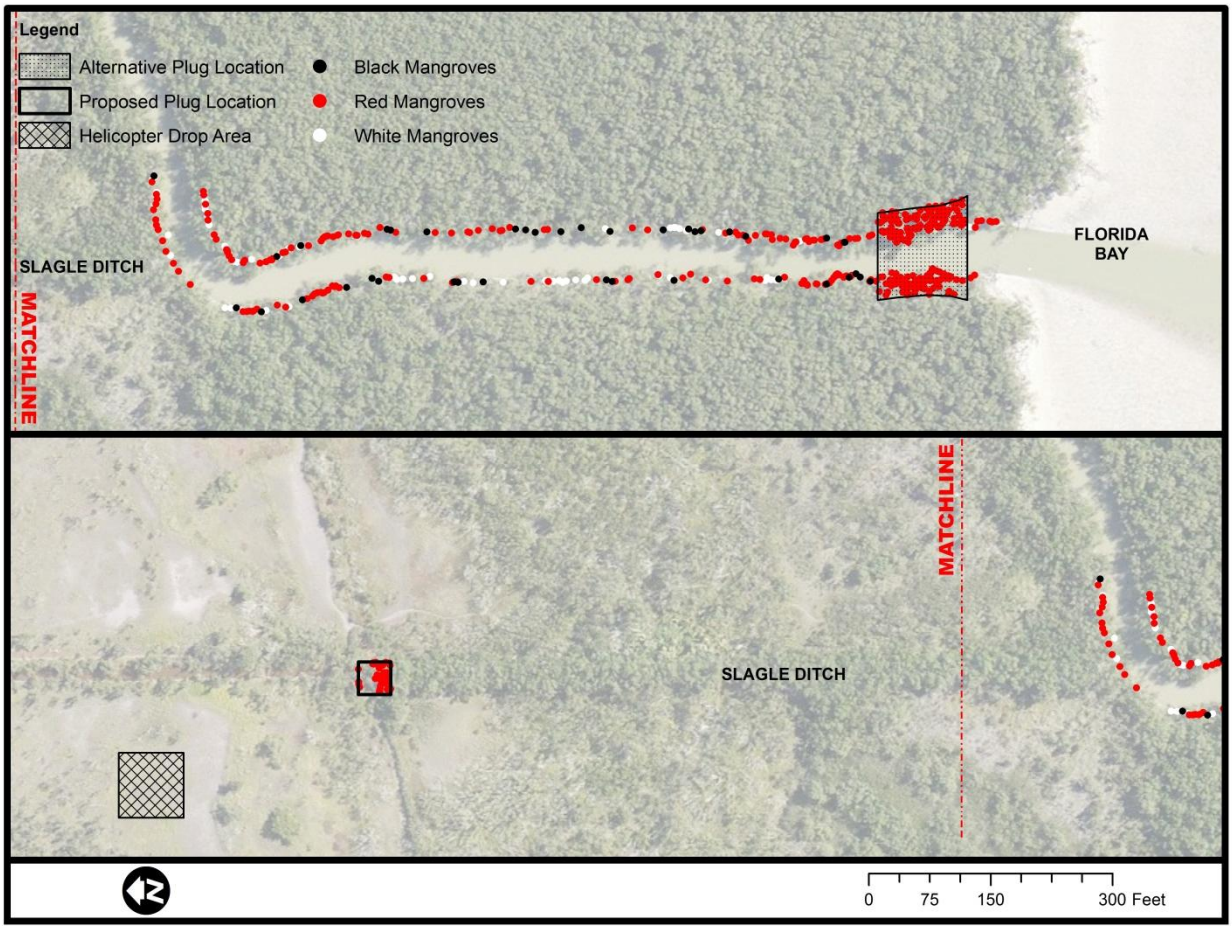

FIGURE 19 - OBSERVED MANGROVES AT SLAGLE DITCH

APPENDIX A

PHOTOGRAPHIC LOGS

RAULERSON CANAL

AECOM

PHOTOGRAPHIC LOG

Client Name:	Project:	Project No.
National Park Service	Cape Sable Plugs Restoration-Phase II Raulerson Canal	60411173.12640270.05001

Photo No.	Date:
1	6/24/15

Location :
Lake Ingraham/Little Sable Creek Approach

Description:
View North

Approaching one of two entrances (western) into Little Sable Creek

Photo No.	Date:
2	6/24/15

Location :
Little Sable Creek Approach

Description:
View Northeast

Surveying Little Sable Creek approach to the proposed Raulerson Canal Plug site. Numerous mangrove specimens will require trimming; some specimens will be removed to clear the approach to the proposed plug site and facilitate the transport of construction equipment & materials via barge.

AECOM

PHOTOGRAPHIC LOG

Client Name:	Project:	Project No.
National Park Service	Cape Sable Plugs Restoration-Phase II Raulerson Canal	60411173.12640270.05001

Photo No.	Date:
3	6/24/15

Location :
Little Sable Creek Approach

Description:
View North-Northwest

Surveying Little Sable Creek approach to the proposed Raulerson Canal Plug site.

Photo No.	Date:
4	6/24/15

Location :
Little Sable Creek Approach/proposed Raulerson Canal Plug site

Description:
View Northeast

Surveying Little Sable Creek approach to the proposed Raulerson Canal Plug site.(background midphoto).

AECOM

PHOTOGRAPHIC LOG

Client Name:	Project:	Project No.
National Park Service	Cape Sable Plugs Restoration-Phase II	60411173.12640270.05001

Photo No.	Date:
5	6/24/15

Location :
Proposed Raulerson Canal Plug site

Description:
Looking Northeast

Proposed plug site location. The banks of the site are dominated by black & red mangroves; the interior by black mangrove trees and shrubs. Black mangrove nematophores & red mangrove seedlings comprise the 'groundcover' along and adjacent to the creek banks which transition into a dense saltwort groundcover and coastal prairie across the interior.

Photo No.	Date:
6	6/24/15

Location :
Proposed Raulerson Canal Plug site

Description:
View South

Proposed plug site location. Black mangrove trees & scrub-shrub, and dense saltwort groundcover comprise the proposed plug site.

HOUSE DITCH

AECOM

PHOTOGRAPHIC LOG

Client Name:	Project:	Project No.
National Park Service	Cape Sable Plugs Restoration-Phase II	60411173.12640270.05001

Photo No.	Date:
1	6/11/15

Location :
House Ditch Approach & Alternative Plug Site Location / West Bank

Description:
View Southeast

House Ditch Alternative Plug Site, located at mouth of Florida Bay (mid background).

Photo No.	Date:
2	6/11/15

Location :
House Ditch Approach & Alternative Plug Site Location / West Bank

Description:
Looking West

House Ditch approach & alternative plug site, located proximal to Florida Bay, is characterized by red mangrove-dominated ditch banks and red & black mangrove-dominated interior. Groundcover consists of red mangrove seedlings, black mangrove pneumatophores and saltwort

PHOTOGRAPHIC LOG

Client Name:	Project:	Project No.
National Park Service	Cape Sable Plugs Restoration-Phase II	60411173.12640270.05001

Photo No.	Date:
3	6/11/15

Location :
House Ditch Alternative Plug Site (at mouth of Florida Bay).

Description:
View North-Northwest

East & west sides of ditch at mouth to Florida Bay are populated primarily by red & black mangroves interspersed with fewer white mangroves. Sparse groundcover primarily red mangrove seedlings, black mangrove pneumatophores & 'patchy' saltwort populating areas along ditch banks.

Photo No.	Date:
4	6/11/15

Location :
House Ditch Approach South of 'Old Ingraham Hwy'.

Description:
View South

Typical view of the House Ditch alignment. South of the elevated remnants of Old Ingraham Hwy., the narrow, regularly-inundated ditch is densely populated with red mangroves.

AECOM

PHOTOGRAPHIC LOG

Client Name:	Project:	Project No.
National Park Service	Cape Sable Plugs Restoration-Phase II	60411173.12640270.05001

Photo No.	Date:
5	7/1/15

House Ditch at Old Ingraham Hwy/Coastal Prairie Trail.

Description:
View West

Sideroxylon sp. dominate areas of the elevated remnant of 'Old Ingraham Hwy.'

Common tree and shrub species include buttonwood, saffron plum, catclaw blackbead, limber caper, gray knicker, and white indigoberry. Common ground cover species include saltwort, sea blite, common wireweed, bushy seaside oxeye, perennial glasswort, and bladdermallow

Photo No.	Date:
6	7/1/15

Location :
House Ditch at Old Ingraham Hwy/Coastal Prairie Trail.

Description:
View East

The slightly elevated remnant of the Old Ingraham Highway is vegetated with a mix of wetland and non-wetland species.

AECOM

PHOTOGRAPHIC LOG

Client Name:	Project:	Project No.
National Park Service	Cape Sable Plugs Restoration-Phase II	60411173.12640270.05001

Photo No.	Date:
7	7/1/15

House Ditch Plug Site location (at Old Ingraham Hwy.).

Description:
View Southwest

Soil pit on 'Old Ingraham Hwy. which coincides with the Cape Sable Coastal Prairie Trail. The substrate underlying the 40-foot by 40-foot proposed plug site is partially composed of fill material that was used for the construction of Old Ingraham Highway. The underlying substrate consists of a sequence of fine carbonate mud, marl, underlain by a relatively narrow peat layer followed by limestone bedrock.

Photo No.	Date:
8	7/1/15

Location :
House Ditch north of 'Old Ingraham Hwy'/Coastal Prairie Trail.

Description:
View North

On the north side of 'Old Ingraham Hwy.', the species composition changes along House Ditch and is dominated by areas of open water bordered by black mangrove and saltwort. No submerged vegetation was observed within the subtidal open water areas

AECOM

PHOTOGRAPHIC LOG

Client Name:	Project:	Project No.
National Park Service	Cape Sable Plugs Restoration-Phase II	60411173.12640270.05001

Photo No.	Date:
7	6/9/15

Location :
House Ditch – Proposed Helicopter Drop Area

Description:
View North

Proposed 80 ft x 80 ft helicopter drop area (foreground) located approximately 150 feet NNW of alternative House Ditch Plug Site (at 'Old Ingraham Hwy.'). Area is characterized as coastal prairie and scrub-shrub dominated by saltwort with widely-spaced black mangrove shrubs.

Photo No.	Date:
8	6/9/15

Location :
House Ditch – Proposed Helicopter Drop Area

Description:
View South

The Proposed Helicopter Drop area (background). The proposed drop area is coastal prairie transitioning southward into black mangrove scrub-shrub & dense saltwort groundcover.

SLAGLE DITCH

AECOM

PHOTOGRAPHIC LOG

Client Name:	Project:	Project No.
National Park Service	Cape Sable Plugs Restoration-Phase II	60411173.12640270.05001

Photo No.	Date:
1	5/28/15

Location :
Slagle Ditch Approach & Alternative Plug Site Location - West Bank

Description:
View Southwest

Slagle Ditch Plug Site alternative, located at mouth of Florida Bay (mid background). Slagle Ditch, a man-made ditch traversing the emergent carbonate marl ridge located between Florida Bay & the interior mosaic of mangrove wetlands and numerous subtidal open water areas.

Photo No.	Date:
2	5/28/15

Location :
Slagle Ditch Approach & Alternate Plug Site Location (at mouth to Florida Bay)/ East Bank

Description:
Looking East
Slagle Ditch approach and alternative plug site, located proximal to Florida Bay, is characterized by red mangrove-dominated ditch banks and red & black mangrove-dominated interior.

AECOM

PHOTOGRAPHIC LOG

Client Name:	Project:	Project No.
National Park Service	Cape Sable Plugs Restoration-Phase II	60411173.12640270.05001

Photo No.	Date:
3	5/28/15

Location :
Slagle Ditch Alternative Plug Site (at mouth of Florida Bay).

Description:
View North-Northwest

East and west sides of Slagle Ditch at mouth to Florida Bay are populated primarily by red and black mangroves interspersed with white mangroves. Sparse groundcover consisted primarily red mangrove seedlings, black mangrove pneumatophores, and saltwort in patches

Photo No.	Date:
4	5/28/15

Location :
Slagle Ditch Approach south of alternative Plug Site location (just south of Old Ingraham Hwy.).

Description:
Looking South

View South

Typical view of Slagle Ditch alignment overgrown with red mangroves between tidal creek and Old Ingraham Highway.

AECOM

PHOTOGRAPHIC LOG

Client Name:	Project:	Project No.
National Park Service	Cape Sable Plugs Restoration-Phase II	60411173.12640270.05001

Photo No.	Date:
5	6/9/15

Location :
Slagle Ditch at the elevated remnant 'Old Ingraham Hwy'.

Description:
View West

Slagle Ditch (mid photo-right) exiting on the north side of the 'Old Ingraham Hwy.' (bottom-top mid photo). The slightly elevated remnant of the Old Ingraham Highway is vegetated with a mix of wetland and non-wetland species.

Photo No.	Date:
6	6/9/15

Location :
Slagle Ditch at the elevated remnant 'Old Ingraham Hwy'.

Description:
View East

Slagle Ditch (bottom) exiting on the north side of the 'Old Ingraham Hwy.' (mid photo). The slightly elevated remnant of the Old Ingraham Highway is vegetated with a mix of wetland and non-wetland species.

AECOM

PHOTOGRAPHIC LOG

Client Name:	Project:	Project No.
National Park Service	Cape Sable Plugs Restoration-Phase II	60411173.12640270.05001

Photo No.	Date:
7	6/9/15

Location :
Plug Site location (at Old Ingraham Hwy.).

Description:
View Northeast

Soil pit on 'Old Ingraham Hwy. which coincides with the Cape Sable Coastal Prairie Trail. The substrate underlying the 40-foot by 40-foot proposed plug site is partially composed of fill material that was used for the construction of the slightly elevated Old Ingraham Highway. The underlying substrate consists of a sequence of fine carbonate mud, marl, underlain by a relatively narrow peat layer followed by limestone bedrock.

Photo No.	Date:
8	6/9/15

Location :
Slagle Ditch Plug Site location (at Old Ingraham Hwy.).

Description:
View Southwest

Tidal influx breaching the elevated remnant of 'Old Ingraham Hwy,' via crab burrows and the Slagle Ditch. North of the elevated remnant road the ditch and adjacent areas are characterized as a regularly to irregularly-inundated saltwort prairie with widely-spaced black mangrove shrubs.

APPENDIX B

UMAM ASSESSMENT FORMS

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Everglades National Park (ENP) Cape Sable II Canals Restoration Project		Southern Interiors Wetlands - Existing Conditions

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
542 / 612	E2SS3U / E2USM	Mitigation	**55,894 acres**

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)
S-7 Watershed/Everglades	Class II	OFW, Everglades National Park

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Mosaic of freshwater, brackish, marine, and hypersaline wetland communities and open water unconsolidated bottom systems between Whitewater Bay and Florida Bay/Gulf of Mexico. The southern interior wetlands are separated from Florida Bay and the Gulf of Mexico by an emergent calcium carbonate marl ridge system on the south and west. Several man-made canals and natural creeks connect the interior wetlands to tidal waters through the marl ridge.

Assessment area description

The habitats on the mainland-side of the marl ridge are comprised primarily of a mosaic of mangrove wetland and numerous shallow bottom subtidal areas of open water. The southern interior of Cape Sable was a continuous marsh with isolated round lakes prior to the construction of the Raulereson, Homestead and East Cape Extension canals which, along with increasing tidal erosion occurring in larger tidal creeks, such as East Side Creek and Little Sable Creek, and 'natural ditches', i.e., House & Slagle Ditches, increased saltwater intrusion into the interior resulting in the degradation of these systems. These formerly freshwater southern interior marshes are separated from the intertidal habitats of Lake Ingraham by the marl ridge. In addition to periodic overtopping of the marl ridge, the interior marsh area receives saltwater input via the failed sheet piling dams in the East Side Creek and Raulerson Canal, and the compromised earthen dam plugs at the House and Slagle Ditch dam sites. Further north, the central and northern interior areas contain a mosaic of freshwater, brackish, marine, and hyper-saline flora although much of the interior is dominated by red mangrove interspersed with open water. In addition to mangroves, common flora in the central and northern interior areas includes cordgrass (*Spartina* spp.) and sawgrass (*Cladium jamaicense*).

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Marl Ridge, Cape Sable, Florida Bay, Gulf of Mexico, Marl Ridge, Whitewater Bay	Relatively unique large intertidal embayment experiencing pronounced sedimentation resulting from the alteration of original hydrological regime by man-made canals. The lake is located within a mosaic of mangrove wetlands, tidal flats, and coastal prairie wetlands.
Functions	**Mitigation for previous permit/other historic use**
Wildlife and fisheries habitat, water quality	Homestead Canal and East Cape Canal Extension Projects
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	**Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)**
Various wading birds (egrets, herons, ibis, etc.), belted kingfisher (*Ceryle alcyon*), various shorebirds, diamondback terrapin (*Malaclemys terrapin*), various game and forage fish, blue crab (*Callinectes sapidus*), shrimp (*Penaeus* spp.),	American crocodile (Crocodylus acutus) - T, wood stork (*Mycteria americana*) - E, osprey (*Pandion haleaetus*) - SSC, various wading birds - SSC,

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
Michael Breiner	November 6, 2015

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Everglades National Park (ENP) Cape Sable II Canals Restoration Project		Southern Interiors Wetlands - Existing Conditions
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Mitigation	Michael Breiner	November 6, 2015

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	**w/o pres or current**	**with**	Habitats outside of the AA optimal for most wildlife (e.g., game and forage fish, wading birds, shore birds, etc.) expected to occur in the area . Very little invasive exotic vegetation occurs in the vicinity of the AA. Backcountry nature of the area presents very little in the way of man-made barriers to wildlife. Impacts to wildlife are exhibited primarily by the degradation of the former brackish to fresh marsh wetlands by saline intrusion via man-made canals and tidal creeks. The quality of the interior wetlands are adversely affected by the continued intrusion of tidal waters through the failed dams at the East Side Creek, Raulerson Canal, and the House and Slagle Ditches.
	8		
.500(6)(b)Water Environment (n/a for uplands)	**w/o pres or current**	**with**	The man-made canals and tidal creeks (East Side Creek, Raulerson Canal, and the House and Slagle Ditches) that have experienced lateral erosion and failed dams have altered the hydrological regime resulting in the conversion of a previously fresh to brackish wetlands to a tidally influenced system experiencing degradation of the wetland communities.
	8		
.500(6)(c)Community structure **1. Vegetation and/or** **2. Benthic Community**	**w/o pres or current**	**with**	The habitats in the southern interior wetlands on the mainland-side of the marl ridge are comprised primarily of a mosaic of mangrove wetland and numerous shallow bottom subtidal areas of open water that were formerly continuous marsh with isolated round lakes prior to the construction of the Raulerson Canal, Homestead and East Cape Extension canals which increased saltwater intrusion to the interior resulting in marsh collapse. These habitats transition northward to a mosaic of freshwater, brackish, marine, and hyper-saline wetland systems in the central and northern interior areas.
	7		

Score=sum of above scores/30 (if uplands, divide by 20)	w/o pres or current	with
	0.7667	

Delta = [with-current]

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =

For mitigation assessment areas

Form 62-345.900(2), F.A.C. [effective date 2/2/04]

RAULERSON CANAL

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Everglades National Park (ENP) Cape Sable Plugs Restoration Project		Raulerson Canal - Proposed Plug Site / Location 2 - Existing Conditions

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
612 / 512	E2FO3P, E2SS3P, E1UBLx	Impact	

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)
S-7 Watershed/Everglades	Class II	OFW, Everglades National Park

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Man-made canal traversing emergent carbonate marl ridge between Lake Ingraham via Little Sable Creek and the interior mosaic of mangrove wetlands and numerous shallow subtidal open water areas that were formerly brackish to fresh marshes prior to construction of the canal that breached the marl ridge resulting in tidal intrusion into the marsh habitat. Lake Ingraham is connected to Florida Bay and Gulf of Mexico via canals now functioning as tidal inlets following dramatic lateral erosion after construction.

Assessment area description

The Raulerson Canal was constructed in the 1920s and cuts across the marl ridge from the interior wetlands to connect to a naturally-formed tidal creek, Little Sable Creek, entering the northwestern extent of Lake Ingraham at the extensively-eroded Middle Cape Canal. Permanently-inundated Raulerson Canal originally was excavated for development purposes. The substrate at the proposed plug site on the excavated canal is comprised of a sequence of fine carbonate mud, marl, underlain by a relatively narrow peat layer followed by limestone bedrock. No submerged vegetation exists within the waterway itself, possibly due to considerable turbidity resulting from the interaction of strong tidal currents and suspended fine particles originating with the marl substrate. The banks of the approach to the proposed plug site are comprised primarily of regularly flooded mangrove wetlands dominated by red mangrove (*Rhizophora mangle*), black mangrove (*Avicennia germinans*), and white mangrove (*Laguncularia racemosa*) with a sparse to dense groundcover dominated by red mangrove seedlings, black mangrove nematophores, and saltwort (*Batis maritima*). The south side of the canal at the proposed plug site is characterized by a regularly to irregularly inundated dense ground cover of saltwort with an open canopy black mangrove woodland on the west transitioning eastward to a saltwort community with widely spaced black mangrove and white mangrove shrubs. The north side of the canal at the proposed plug site is characterized by a regularly to irregularly inundated open canopy woodland dominated by black mangrove with a lesser component of white mangrove and red mangrove and a moderate to dense ground cover of saltwort.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Cape Sable, Lake Ingraham, Gulf of Mexico, Marl Ridge, interior Cape Sable wetlands.	Low for mangroves wetlands, medium for mosaic of black mangrove shrub and saltwort coastal prairie on marl ridge.
Functions	**Mitigation for previous permit/other historic use**
Wildlife and fisheries habitat, water quality	N/A
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	**Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)**
Raccoon (*Procyon lotor*), marsh rabbit (*Sylvilagus palustris*), red-shouldered hawk (*Buteo lineatus*), various wading birds (egrets, herons, ibis, etc.), double-crested cormorant (*Phalacrocorax auritus*), various gulls, belted kingfisher (*Ceryle alcyon*), diamondback terrapin (*Malaclemys terrapin*), mullet (*Mugil* spp.), pinfish (*Lagodon rhomboides*), blue crab (*Callinectes sapidus*), fiddler crab (*Uca* sp.)	Smalltooth sawfish (*Pristis pectinata*) - E, American crocodile (*Crocodylus acutus*) - T, eastern indigo snake (*Drymarchon corais couperi*) - T, wood stork (*Mycteria americana*) - E, osprey (*Pandion haleaetus*) - SSC, various wading birds - SSC, West Indian manatee (*Trichechus manatus*) - E

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

American crocodile, belted kingfishers, unidentified passerines, lemon sharks, mullet, needlefish, small unidentified fish, various crabs.

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
Michael Breiner	July 30, 2015

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Everglades National Park (ENP) Cape Sable II Canals Restoration Project		Raulerson Canal - Proposed Plug Site / Location 2 - Existing Conditions
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Michael Breiner	July 30, 2015

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	**w/o pres or current**	**with**
	8	
Habitats outside of the AA optimal for most wildlife expected to occur in the area. Very little invasive exotic vegetation occurs in the vicinity of the AA. Wildlife access to and from minimally limited by canal. Downstream functions negatively affected by failed plug in form of increase saltwater intrusion in interior wetland systems. Land uses outside AA minimally affect fish and wildlife		
.500(6)(b)Water Environment (n/a for uplands)	**w/o pres or current**	**with**
	6	
Increasing tidal flow through the canal after previously constructed plug failed is inappropriate for system. Daily tidal fluctuations causing severe lateral erosion of the canal banks allowing increasing flow resulting with greater saltwater intrusion to the interior wetland systems. Erosion of the canal banks also contributing to loss of mangrove and saltwort prairie habitat		
.500(6)(c)Community structure **1. Vegetation and/or** **2. Benthic Community**	**w/o pres or current**	**with**
	6	
Majority of vegetation in all strata are appropriate for the habitats at the AA with minimal invasive exotic species present. Vegetation adjacent to canal increasing lost to the lateral erosion of the canal banks caused by excessive currents through failed plug. Vegetation and habitat will continue to deteriorate not only along canal banks but also within interior wetland systems due to the saltwater intrusion allowed by the failed plug.		

Score=sum of above scores/30 (if uplands, divide by 20)	w/o pres or current	with
	0.6667	

Delta = [with-current]

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

HOUSE DITCH

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Everglades National Park (ENP) Cape Sable II Canals Restoration Project		House Ditch - Proposed Plug Site at Florida Bay - Existing Conditions

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
612 / 512	E1UBL, E2FO3N, E2FO3N/P	Impact	

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)
S-7 Watershed/Everglades	Class II	OFW, Everglades National Park

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Man-made ditch traversing emergent carbonate marl ridge between Florida Bay and the interior mosaic of mangrove wetlands and numerous shallow subtidal open water areas that were formerly brackish to fresh marshes prior to construction of the ditch that breached the marl ridge resulting in tidal intrusion into the marsh habitat.

Assessment area description

The House Ditch was constructed in the 1920s and cuts across the marl ridge from the interior wetlands to connect to Florida Bay. The House Ditch was originally excavated for development purposes. House Ditch extends approximately 0.8 miles from Florida Bay northward to the Coastal Prairie Trail, the location of the original earthen plug built in the 1950's. South of the Coastal Prairie Trail and the elevated remnant of the Old Ingraham Highway, the narrow, regularly inundated ditch is overgrown with red mangrove and their associated prop roots along with black mangrove (*Avicennia germinans*). No submerged vegetation was observed in this system.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Florida Bay, Cape Sable, Marl Ridge, interior Cape Sable wetlands.	Low for mangroves wetlands, medium for mosaic of black mangrove shrub and saltwort coastal prairie on marl ridge.

Functions	Mitigation for previous permit/other historic use
Wildlife and fisheries habitat, water quality	N/A

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), marsh rabbit (*Sylvilagus palustris*), red-shouldered hawk (*Buteo lineatus*), various wading birds (egrets, herons, ibis, etc.), double-crested cormorant (*Phalacrocorax auritus*), various gulls, belted kingfisher (*Ceryle alcyon*), diamondback terrapin (*Malaclemys terrapin*), mullet (*Mugil* spp.), pinfish (*Lagodon rhomboides*), blue crab (*Callinectes sapidus*), fiddler crab (*Uca* sp.)	Smalltooth sawfish (*Pristis pectinata*) - E, American crocodile (*Crocodylus acutus*) - T, eastern indigo snake (*Drymarchon corais couperi*) - T, wood stork (*Mycteria americana*) - E, osprey (*Pandion haleaetus*) - SSC, various wading birds - SSC, West Indian manatee (*Trichechus manatus*) - E

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

White ibis, unidentified passerines, small unidentified fish, various crabs.

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
Michael Breiner	July 30, 2015

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Everglades National Park (ENP) Cape Sable II Canals Restoration Project		House Ditch - Proposed Plug Site at Florida Bay Existing Conditions
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Michael Breiner	July 30, 2015

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

	w/o pres or current	with	
.500(6)(a) Location and Landscape Support	**8**		Habitats outside of the AA optimal for most wildlife expected to occur in the area. Very little invasive exotic vegetation occurs in the vicinity of the AA. Wildlife access to and from minimally limited by canal. Downstream functions negatively affected by increased saltwater intrusion in interior wetland systems. Land uses outside AA minimally affect fish and wildlife
.500(6)(b)Water Environment (n/a for uplands)	**6**		Increasing tidal flow inappropriate for system. Daily tidal fluctuations penetrate the interior of Cape Sable via House Ditch and extend northward beyond the compromised earthen plug at the Coastal Prairie Trail/'Old Ingraham Highway resulting in greater saltwater intrusion throughout the interior wetland systems.
.500(6)(c)Community structure **1. Vegetation and/or** **2. Benthic Community**	**6**		Majority of vegetation in all strata are appropriate for the habitats at the AA with minimal invasive exotic species present. Vegetation and habitat will continue to deteriorate within interior wetland systems due to the saltwater intrusion allowed by the increasing erosion of the remnant roadbed and earthen plug.

Score=sum of above scores/30 (if uplands, divide by 20)	w/o pres or current	with
	0.6667	

Delta = [with-current]

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Everglades National Park (ENP) Cape Sable II Canals Restoration Project		House Ditch - Proposed Plug Site at Coastal Prairie Trail - Existing Conditions

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
612 / 512	E2FO3N, E2SS3P, E1UBLx	Impact	

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)
S-7 Watershed/Everglades	Class II	OFW, Everglades National Park

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Man-made ditch traversing emergent carbonate marl ridge between Florida Bay and the interior mosaic of mangrove wetlands and numerous shallow subtidal open water areas that were formerly brackish to fresh marshes prior to construction of the ditch that breached the marl ridge resulting in tidal intrusion into the marsh habitat.

Assessment area description

The House Ditch was constructed in the 1920s and cuts across the marl ridge from the interior wetlands to connect to Florida Bay. The House Ditch was originally excavated for development purposes. The substrate at the 40-foot by 40-foot proposed plug site is partially composed of fill material that was used for the construction of the slightly elevated Old Ingraham Highway in the 1920s which bisects the alignment of the House Ditch. The underlying substrate consists of a sequence of fine carbonate mud, marl, underlain by a relatively narrow peat layer followed by limestone bedrock. South of the elevated remnant of the Old Ingraham Highway, the narrow, regularly inundated ditch is overgrown with red mangrove and their associated prop roots along with black mangrove (*Avicennia germinans*). The House Ditch alignment north of the Old Ingraham Highway consists of a relatively wide expanse of open water bordered primarily by black mangrove and saltwort (*Batis maritima*). No submerged vegetation was observed in this system. The elevated remnant of the Old Ingraham Highway is vegetated primarily with non-wetland species. The woody component is dominated by saffron plum (*Sideroxylon celastrinum*) along with limber caper (*Capparis flexuosa*) and buttonwood (*Conocarpus erectus*). Common ground cover species include Indian hemp (*Sida rhombifolia*), sleepy morning (*Waltheria indica*), sensitive pea (*Chamaecrista nictitans*), and scorpionstail (*Heliotropium angiospermum*).

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Florida Bay, Cape Sable, Marl Ridge, interior Cape Sable wetlands.	Low for mangroves wetlands, medium for mosaic of black mangrove shrub and saltwort coastal prairie on marl ridge.
Functions	**Mitigation for previous permit/other historic use**
Wildlife and fisheries habitat, water quality	N/A
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	**Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)**
Raccoon (*Procyon lotor*), marsh rabbit (*Sylvilagus palustris*), red-shouldered hawk (*Buteo lineatus*), various wading birds (egrets, herons, ibis, etc.), double-crested cormorant (*Phalacrocorax auritus*), various gulls, belted kingfisher (*Ceryle alcyon*), diamondback terrapin (*Malaclemys terrapin*), mullet (*Mugil* spp.), pinfish (*Lagodon rhomboides*), blue crab (*Callinectes sapidus*), fiddler crab (*Uca* sp.)	Smalltooth sawfish (*Pristis pectinata*) - E, American crocodile (*Crocodylus acutus*) - T, eastern indigo snake (*Drymarchon corais couperi*) - T, wood stork (*Mycteria americana*) - E, osprey (*Pandion haleaetus*) - SSC, various wading birds - SSC, West Indian manatee (*Trichechus manatus*) - E

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

White ibis, unidentified passerines, small unidentified fish, various crabs.

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
Michael Breiner	July 30, 2015

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Everglades National Park (ENP) Cape Sable II Canals Restoration Project		House Ditch - Proposed Plug Site at Coastal Prairie Trail - Existing Conditions
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Michael Breiner	July 30, 2015

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	**w/o pres or current**	**with**	Habitats outside of the AA optimal for most wildlife expected to occur in the area. Very little invasive exotic vegetation occurs in the vicinity of the AA. Wildlife access to and from minimally limited by canal. Downstream functions negatively affected by increased saltwater intrusion in interior wetland systems. Land uses outside AA minimally affect fish and wildlife
	8		
.500(6)(b)Water Environment (n/a for uplands)	**w/o pres or current**	**with**	Tidal flow over and through crab burrows in the elevated remnant the Old Ingraham Highway is resulting in and increasing breakdown of the integrity of the elevated area allowing tidal flow into the interior. Erosion caused by daily tidal fluctuations is allowing increasing flow resulting with greater saltwater intrusion to the interior wetland systems.
	6		
.500(6)(c)Community structure **1. Vegetation and/or** **2. Benthic Community**	**w/o pres or current**	**with**	Majority of vegetation in all strata are appropriate for the habitats at the AA with minimal invasive exotic species present. Vegetation and habitat will continue to deteriorate within interior wetland systems due to the saltwater intrusion allowed by the increasing erosion of the remnant roadbed.
	6		

Score=sum of above scores/30 (if uplands, divide by 20)	w/o pres or current	with
	0.6667	

Delta = [with-current]

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Everglades National Park (ENP) Cape Sable II Canals Restoration Project		House Ditch - Proposed Helicopter Drop Area Existing Conditions

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
642	E2EM1N/P	Impact	

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)
S-7 Watershed/Everglades	Class II	OFW, Everglades National Park

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Man-made ditch traversing emergent carbonate marl ridge between Florida Bay and the interior mosaic of mangrove wetlands and numerous shallow subtidal open water areas that were formerly brackish to fresh marshes prior to construction of the ditch that breached the marl ridge resulting in tidal intrusion into the marsh habitat.

Assessment area description

A potential 80-foot by 80-foot helicopter drop area identified approximately 150 feet north northwest of the proposed plug site was composed of a regularly to irregularly inundated mosaic of non-vegetated marl flats and saltwort prairie. Widely-spaced shrub-size black mangrove are present. The area between the proposed plug site and the potential helicopter drop area consists primarily of black mangrove scrub-shrub with a dense ground cover of saltwort.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Florida Bay, Cape Sable, Marl Ridge, interior Cape Sable wetlands.	Medium for mosaic of black mangrove shrub and saltwort coastal prairie on marl ridge.
Functions	**Mitigation for previous permit/other historic use**
Wildlife and fisheries habitat, water quality	N/A
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	**Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)**
Raccoon (*Procyon lotor*), marsh rabbit (*Sylvilagus palustris*), red-shouldered hawk (*Buteo lineatus*), various wading birds (egrets, herons, ibis, etc.), various gulls, belted kingfisher (*Ceryle alcyon*), diamondback terrapin (*Malaclemys terrapin*), fiddler crab (*Uca* sp.)	American crocodile (*Crocodylus acutus*) - T, eastern indigo snake (*Drymarchon corais couperi*) - T, wood stork (*Mycteria americana*) - E, various wading birds - SSC

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

White ibis, fiddler crabs.

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
Michael Breiner	July 30, 2015

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Everglades National Park (ENP) Cape Sable II Canals Restoration Project		House Ditch - Proposed Helicopter Drop Area Wetlands Impacts
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Michael Breiner	July 30, 2015

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

	w/o pres or current	with	
.500(6)(a) Location and Landscape Support	**8**		Habitats outside of the AA optimal for most wildlife expected to occur in the area. Very little invasive exotic vegetation occurs in the vicinity of the AA. Wildlife access to and from not limited. Downstream functions negatively affected by increased saltwater intrusion in interior wetland systems. Land uses outside AA minimally affect fish and wildlife
.500(6)(b)Water Environment (n/a for uplands)	**7**		Tidal flow over and through crab burrows in the elevated remant the Old Ingraham Highway is resulting in and increasing breakdown of the integraity of the elevated area allowing tidal flow into the interior. Erosion caused by daily tidal fluctuations is allowing increasing flow resulting with greater saltwater intrusion to the interior wetland systems.
.500(6)(c)Community structure **1. Vegetation and/or** **2. Benthic Community**	**7**		Majority of vegetation in all strata are appropriate for the habitats at the AA with minimal invasive exotic species present. Vegetation and habitat will continue to deteriorate within interior wetland systems due to the saltwater intrusion allowed by the increasing erosion of the remnant roadbed.

Score=sum of above scores/30 (if uplands, divide by 20)	w/o pres or current	with
	0.7333	

Delta = [with-current]

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

SLAGLE DITCH

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Everglades National Park (ENP) Cape Sable II Canals Restoration Project		Slagle Ditch - Proposed Plug Site at Florida Bay - Existing Conditions

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
612 / 512	E1UBL, E2FO3N, E2FO3N/P	Impact	

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)
S-7 Watershed/Everglades	Class II	OFW, Everglades National Park

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Man-made ditch traversing emergent carbonate marl ridge between Florida Bay and the interior mosaic of mangrove wetlands and numerous shallow subtidal open water areas that were formerly brackish to fresh marshes prior to construction of the ditch that breached the marl ridge resulting in tidal intrusion into the marsh habitat.

Assessment area description

The Slagle Ditch was constructed in the 1920s and cuts across the marl ridge from the interior wetlands to connect to Florida Bay. The Slagle Ditch was originally excavated for development purposes. A tidal creek extending approximately 0.5 miles northward from Florida Bay connects with Slagle Ditch and is exhibiting increased erosion, tidal flow, and sediment transport as with the other tidal creeks, i.e., Little Sable Creek, East Side Creek, etc. No submerged vegetation was observed in this system. Creek banks and interior areas in the proximity of the proposed plug site are characterized as regularly-inundated woodland comprised primarily of red mangroves with lesser black & white mangrove components and a groundcover dominated by red mangrove seedlings, black mangrove nematophores, and 'patchy', intermittent areas of saltwort.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Florida Bay, Cape Sable, Marl Ridge, interior Cape Sable wetlands.	Low for mangroves wetlands, medium for mosaic of black mangrove shrub and saltwort coastal prairie on marl ridge.

Functions	Mitigation for previous permit/other historic use
Wildlife and fisheries habitat, water quality	N/A

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), marsh rabbit (*Sylvilagus palustris*), red-shouldered hawk (*Buteo lineatus*), various wading birds (egrets, herons, ibis, etc.), double-crested cormorant (*Phalacrocorax auritus*), various gulls, belted kingfisher (*Ceryle alcyon*), diamondback terrapin (*Malaclemys terrapin*), mullet (*Mugil* spp.), pinfish (*Lagodon rhomboides*), blue crab (*Callinectes sapidus*), fiddler crab (*Uca* sp.)	Smalltooth sawfish (*Pristis pectinata*) - E, American crocodile (*Crocodylus acutus*) - T, eastern indigo snake (*Drymarchon corais couperi*) - T, wood stork (*Mycteria americana*) - E, osprey (*Pandion haleaetus*) - SSC, various wading birds - SSC, West Indian manatee (*Trichechus manatus*) - E

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

White ibis, unidentified passerines, small unidentified fish, various crabs.

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
Michael Breiner	July 30, 2015

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Everglades National Park (ENP) Cape Sable II Canals Restoration Project		Slagle Ditch - Proposed Plug Site at Florida Bay - Existing Conditions
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Michael Breiner	July 30, 2015

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

	w/o pres or current	with	
.500(6)(a) Location and Landscape Support	**8**		Habitats outside of the AA optimal for most wildlife expected to occur in the area. Very little invasive exotic vegetation occurs in the vicinity of the AA. Wildlife access to and from minimally limited by canal. Downstream functions negatively affected by increased saltwater intrusion in interior wetland systems. Land uses outside AA minimally affect fish and wildlife
.500(6)(b)Water Environment (n/a for uplands)	**6**		Increasing tidal flow inappropriate for system. Daily tidal fluctuations causing severe lateral erosion and increased flow within tidal creek and connecting Slagle Ditch resulting in greater saltwater intrusion throughout the interior wetland systems. Erosion of the creek banks also contributing to loss of mangrove habitat and increased sedimentation in the interior wetlands.
.500(6)(c)Community structure **1. Vegetation and/or** **2. Benthic Community**	**6**		Majority of vegetation in all strata are appropriate for the habitats at the AA with minimal invasive exotic species present. Vegetation and habitat will continue to deteriorate within interior wetland systems due to increased saltwater intrusion resulting from increasing erosion within the tidal creek and former plug site.

Score=sum of above scores/30 (if uplands, divide by 20)	w/o pres or current	with
	0.6667	

Delta = [with-current]

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Everglades National Park (ENP) Cape Sable II Canals Restoration Project		Slagle Ditch - Proposed Plug Site at Coastal Prairie Trail - Existing Conditions

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
612 / 512	E2FO3N, E2SS3P, E1UBLx	Impact	

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)
S-7 Watershed/Everglades	Class II	OFW, Everglades National Park

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Man-made ditch traversing emergent carbonate marl ridge between Florida Bay and the interior mosaic of mangrove wetlands and numerous shallow subtidal open water areas that were formerly brackish to fresh marshes prior to construction of the ditch that breached the marl ridge resulting in tidal intrusion into the marsh habitat.

Assessment area description

The Slagle Ditch was constructed in the 1920s and cuts across the marl ridge from the interior wetlands to connect to Florida Bay. The Slagle Ditch was originally excavated for development purposes. The substrate at the 40-foot by 40-foot proposed plug site is partially composed of fill material that was used for the construction of the slightly elevated Old Ingraham Highway in the 1920s which bisects the alignment of the Slagle Ditch. The underlying substrate consists of a sequence of fine carbonate mud, marl, underlain by a relatively narrow peat layer followed by limestone bedrock. South of the elevated remnant of the Old Ingraham Highway, the narrow, regularly inundated ditch is overgrown with red mangrove and their associated prop roots. The Slagle Ditch alignment north of the Old Ingraham Highway consists of open water bordered primarily by black mangrove and saltwort with white mangrove and red mangrove. No submerged vegetation was observed in this system. The slightly elevated remnant of the Old Ingraham Highway is vegetated with a mix of wetland and non-wetland species. Common tree and shrub species include buttonwood, saffron plum, catclaw blackbead (Pithecellobium unguis-cati), limber caper, gray knicker (Caesalpinia bonduc), and white indigoberry (Randia aculeata). Common ground cover species include saltwort, sea blite (Suaeda linearis), common wireweed, bushy seaside oxeye (Borrichia frutescens), perennial glasswort (Sarcocornia ambigua), saltgrass (Distichlis spicata), and bladdermallow (Herissantia crispa).

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Florida Bay, Cape Sable, Marl Ridge, interior Cape Sable wetlands.	Low for mangroves wetlands, medium for mosaic of black mangrove shrub and saltwort coastal prairie on marl ridge.

Functions	Mitigation for previous permit/other historic use
Wildlife and fisheries habitat, water quality	N/A

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), marsh rabbit (*Sylvilagus palustris*), red-shouldered hawk (*Buteo lineatus*), various wading birds (egrets, herons, ibis, etc.), double-crested cormorant (*Phalacrocorax auritus*), various gulls, belted kingfisher (*Ceryle alcyon*), diamondback terrapin (*Malaclemys terrapin*), mullet (*Mugil* spp.), pinfish (*Lagodon rhomboides*), blue crab (*Callinectes sapidus*), fiddler crab (*Uca* sp.)	Smalltooth sawfish (*Pristis pectinata*) - E, American crocodile (*Crocodylus acutus*) - T, eastern indigo snake (*Drymarchon corais couperi*) - T, wood stork (*Mycteria americana*) - E, osprey (*Pandion haleaetus*) - SSC, various wading birds - SSC, West Indian manatee (*Trichechus manatus*) - E

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

White ibis, unidentified passerines, small unidentified fish, various crabs.

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
Michael Breiner	July 30, 2015

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Everglades National Park (ENP) Cape Sable II Canals Restoration Project		Slagle Ditch - Proposed Plug Site at Coastal Prairie Trail - Existing Conditions
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Michael Breiner	July 30, 2015

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	**w/o pres or current**	**with**	Habitats outside of the AA optimal for most wildlife expected to occur in the area. Very little invasive exotic vegetation occurs in the vicinity of the AA. Wildlife access to and from minimally limited by canal. Downstream functions negatively affected by increased saltwater intrusion in interior wetland systems. Land uses outside AA minimally affect fish and wildlife
	8		
.500(6)(b)Water Environment (n/a for uplands)	**w/o pres or current**	**with**	Tidal flow over and through crab burrows in the elevated remnant the Old Ingraham Highway is resulting in and increasing breakdown of the integrity of the elevated area allowing tidal flow into the interior. Erosion caused by daily tidal fluctuations is allowing increasing flow resulting with greater saltwater intrusion to the interior wetland systems.
	6		
.500(6)(c)Community structure **1. Vegetation and/or** **2. Benthic Community**	**w/o pres or current**	**with**	Majority of vegetation in all strata are appropriate for the habitats at the AA with minimal invasive exotic species present. Vegetation and habitat will continue to deteriorate within interior wetland systems due to the saltwater intrusion allowed by the increasing erosion of the remnant roadbed.
	6		

Score=sum of above scores/30 (if uplands, divide by 20)	w/o pres or current	with
	0.6667	

Delta = [with-current]

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Everglades National Park (ENP) Cape Sable II Canals Restoration Project		Slagle Ditch - Proposed Helicopter Drop Area - Existing Conditions

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
642	E2EM1N/P	Impact	

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)
S-7 Watershed/Everglades	Class II	OFW, Everglades National Park

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Man-made ditch traversing emergent carbonate marl ridge between Florida Bay and the interior mosaic of mangrove wetlands and numerous shallow subtidal open water areas that were formerly brackish to fresh marshes prior to construction of the ditch that breached the marl ridge resulting in tidal intrusion into the marsh habitat.

Assessment area description

Potential 80-foot by 80-foot helicopter drop area identified approximately 150 feet north northwest of the proposed Slagle Ditch plug site was composed of a regularly to irregularly inundated saltwort prairie with widely-spaced black mangrove shrubs. The area between the proposed plug site and the potential helicopter drop area consists primarily of saltwort prairie transitioning southward to black mangrove scrub-shrub with a dense ground cover of saltwort.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Florida Bay, Cape Sable, Marl Ridge, interior Cape Sable wetlands.	Medium for mosaic of black mangrove shrub and saltwort coastal prairie on marl ridge.

Functions	Mitigation for previous permit/other historic use
Wildlife and fisheries habitat, water quality	N/A

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Raccoon (*Procyon lotor*), marsh rabbit (*Sylvilagus palustris*), red-shouldered hawk (*Buteo lineatus*), various wading birds (egrets, herons, ibis, etc.), various gulls, belted kingfisher (*Ceryle alcyon*), diamondback terrapin (*Malaclemys terrapin*), fiddler crab (*Uca* sp.)	American crocodile (*Crocodylus acutus*) - T, eastern indigo snake (*Drymarchon corais couperi*) - T, wood stork (*Mycteria americana*) - E, various wading birds - SSC

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

White ibis, small unidentified fish, various crabs.

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
Michael Breiner	July 30, 2015

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Everglades National Park (ENP) Cape Sable II Canals Restoration Project		Slagle Ditch - Proposed Helicopter Drop Area - Existing Conditions
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Michael Breiner	July 30, 2015

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	**w/o pres or current**	**with**
	8	

Habitats outside of the AA optimal for most wildlife expected to occur in the area. Very little invasive exotic vegetation occurs in the vicinity of the AA. Wildlife access to and from not limited. Downstream functions negatively affected by increased saltwater intrusion in interior wetland systems. Land uses outside AA minimally affect fish and wildlife .

.500(6)(b)Water Environment (n/a for uplands)	**w/o pres or current**	**with**
	7	

Tidal flow over and through crab burrows in the elevated remnant the Old Ingraham Highway is resulting in and increasing breakdown of the integrity of the elevated area allowing tidal flow into the interior. Erosion caused by daily tidal fluctuations is allowing increasing flow resulting with greater saltwater intrusion to the interior wetland systems.

.500(6)(c)Community structure **1. Vegetation and/or** **2. Benthic Community**	**w/o pres or current**	**with**
	7	

Majority of vegetation in all strata are appropriate for the habitats at the AA with minimal invasive exotic species present. Vegetation and habitat will continue to deteriorate within interior wetland systems due to the saltwater intrusion allowed by the increasing erosion of the remnant roadbed.

Score=sum of above scores/30 (if uplands, divide by 20)	w/o pres or current	with
	0.7333	

Delta = [with-current]

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

Form 62-345.900(2), F.A.C. [effective date 2/2/04]

APPENDIX C

MANGROVE SURVEY TABLES

SLAGLE DITCH

TABLE 3 - SLAGLE DITCH MANGROVES / FOOTPRINT at FLORIDA BAY

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
177	East Footprint at Mouth of Florida Bay	289485.1963	647564.2459	Red	19.625	8	28.26	6
178	East Footprint at Mouth of Florida Bay	289480.4561	647565.8508	Red	113.04	16	28.26	5
179	East Footprint at Mouth of Florida Bay	289480.7767	647561.9376	Red	50.24	13	12.56	
180	East Footprint at Mouth of Florida Bay	289484.9328	647565.9336	Red	12.56	12	0.785	1
181	East Footprint at Mouth of Florida Bay	289487.4873	647571.1057	Red	28.26	24	38.465	2
182	East Footprint at Mouth of Florida Bay	289491.9042	647561.3190	Red	12.56	14	3.14	2
184	East Footprint at Mouth of Florida Bay	289493.9904	647567.6615	Red	153.86	15	38.465	7
185	East Footprint at Mouth of Florida Bay	289502.4130	647573.5007	Red	28.26	16	12.56	
186	East Footprint at Mouth of Florida Bay	289493.4606	647580.7836	Red	19.625	30	28.26	
187	East Footprint at Mouth of Florida Bay	289491.8791	647584.7197	Red	12.56	10	28.26	
188	East Footprint at Mouth of Florida Bay	289492.1453	647587.5428	Red	7.065	14	50.24	
189	East Footprint at Mouth of Florida Bay	289486.3285	647587.5149	Red	4.90625	22	94.985	
190	East Footprint at Mouth of Florida Bay	289483.7160	647584.2395	Red	38.465	24	50.24	
191	East Footprint at Mouth of Florida Bay	289494.5080	647586.2219	Red	7.065	26	113.04	
192	East Footprint at Mouth of Florida Bay	289490.0432	647577.5953	Red	3.14	14	7.065	
194	East Footprint at Mouth of Florida Bay	289484.3626	647590.5762	Red	4.90625	18	7.065	
203	East Footprint at Mouth of Florida Bay	289496.0888	647587.4812	Red	0.785	21	113.04	
255	East Footprint at Mouth of Florida Bay	289499.9661	647577.9041	Red	38.465	24	63.585	2
256	East Footprint at Mouth of Florida Bay	289501.2437	647577.8926	Red	28.26	11	38.465	3
257	East Footprint at Mouth of Florida Bay	289502.5902	647575.9968	Red	7.065	12	28.26	2
258	East Footprint at Mouth of Florida Bay	289505.3279	647574.7264	Red	94.985	31	153.86	3
259	East Footprint at Mouth of Florida Bay	289505.0499	647565.4038	Red	28.26	26	346.185	4
260	East Footprint at Mouth of Florida Bay	289505.1128	647567.4470	Red	12.56	14	28.26	2
261	East Footprint at Mouth of Florida Bay	289510.5826	647568.3895	Red	12.56	12	113.04	3
262	East Footprint at Mouth of Florida Bay	289513.7704	647556.6623	Red	7.065	13	38.465	0.5
263	East Footprint at Mouth of Florida Bay	289506.7345	647563.6363	Red	7.065	17	38.465	2
264	East Footprint at Mouth of Florida Bay	289513.5378	647572.9717	Red	19.625	13	50.24	5
265	East Footprint at Mouth of Florida Bay	289513.8710	647578.4076	Red	3.14	8	19.625	2
266	East Footprint at Mouth of Florida Bay	289509.4701	647559.6273	Red	28.26	12	50.24	6
267	East Footprint at Mouth of Florida Bay	289512.2660	647556.8552	Red	0.38465	7	7.065	0.7
268	East Footprint at Mouth of Florida Bay	289516.6970	647568.9027	Red	0.38465	7	3.14	0.5
269	East Footprint at Mouth of Florida Bay	289517.0547	647567.8184	Red	19.625	15	63.585	3
270	East Footprint at Mouth of Florida Bay	289525.5592	647558.8933	Red	19.625	23	50.24	4
271	East Footprint at Mouth of Florida Bay	289508.0900	647579.3364	Red	19.625	13	50.24	0.5
272	East Footprint at Mouth of Florida Bay	289515.9501	647580.7863	Red	38.465	30	153.86	1
273	East Footprint at Mouth of Florida Bay	289520.0855	647580.0930	Red	28.26	28	113.04	
274	East Footprint at Mouth of Florida Bay	289508.0256	647583.2736	Red	9.61625	8	7.065	
275	East Footprint at Mouth of Florida Bay	289509.0108	647581.9411	Red	0.785	9	3.14	
276	East Footprint at Mouth of Florida Bay	289516.3701	647582.7861	Red	0.785	9	7.065	
278	East Footprint at Mouth of Florida Bay	289524.8153	647581.9699	Red	0.5024	26	153.86	
279	East Footprint at Mouth of Florida Bay	289528.7834	647569.9117	Red	50.24	33	226.865	
280	East Footprint at Mouth of Florida Bay	289524.0591	647578.5437	Red	63.585	32	153.86	3
281	East Footprint at Mouth of Florida Bay	289524.5439	647575.7253	Red	7.065	22	28.26	2
282	East Footprint at Mouth of Florida Bay	289522.5089	647574.8065	Red	19.625	27	78.5	3
283	East Footprint at Mouth of Florida Bay	289519.1808	647560.1040	Red	1.76625	16	38.465	1.5
284	East Footprint at Mouth of Florida Bay	289524.2662	647574.2045	Red	0.38465	13	50.24	
285	East Footprint at Mouth of Florida Bay	289520.6591	647566.0770	Red	38.465	25	153.86	7
286	East Footprint at Mouth of Florida Bay	289519.2795	647569.2713	Red	38.465	26	38.465	7
287	East Footprint at Mouth of Florida Bay	289519.3703	647567.5913	Red	1.1304	8	12.56	1.2
288	East Footprint at Mouth of Florida Bay	289521.1021	647560.2879	Red	113.04	13	63.585	12
289	East Footprint at Mouth of Florida Bay	289525.1341	647553.3272	Red	4.90625	15	50.24	2.5
290	East Footprint at Mouth of Florida Bay	289523.6945	647560.5328	Red	12.56	14	50.24	4
291	East Footprint at Mouth of Florida Bay	289523.6472	647554.1446	Red	7.065	14	50.24	3
292	East Footprint at Mouth of Florida Bay	289527.0952	647557.0761	Red	33.16625	14	94.985	6.5
293	East Footprint at Mouth of Florida Bay	289536.8344	647555.3712	Red	153.86	32	153.86	14
294	East Footprint at Mouth of Florida Bay	289535.4198	647558.9460	Red	19.625	16	38.465	5
295	East Footprint at Mouth of Florida Bay	289529.3583	647567.6783	Red	113.04	34	226.865	12
296	East Footprint at Mouth of Florida Bay	289530.3619	647568.8104	Red	15.89625	29	63.585	4.5
297	East Footprint at Mouth of Florida Bay	289516.8984	647559.7347	Red	12.56	5	19.625	4
298	East Footprint at Mouth of Florida Bay	289535.4538	647578.1390	Red	0.0314	8	4.90625	
299	East Footprint at Mouth of Florida Bay	289530.4430	647569.8968	Red	0.5024	9	19.625	
300	East Footprint at Mouth of Florida Bay	289527.1311	647579.5799	Red	7.065	8	7.065	
350	East Footprint at Mouth of Florida Bay	289547.9329	647568.2226	Red	0.0314	8	7.065	
351	East Footprint at Mouth of Florida Bay	289541.7904	647570.6921	Red	1.32665	12	19.625	
352	East Footprint at Mouth of Florida Bay	289539.0970	647571.3330	Red	0.19625	8	3.14	

TABLE 3 - SLAGLE DITCH MANGROVES / FOOTPRINT at FLORIDA BAY

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
353	East Footprint at Mouth of Florida Bay	289540.0663	647566.2191	Red	0.785	14	19.625	
354	East Footprint at Mouth of Florida Bay	289546.6784	647554.3581	Red	0.785	11	12.56	
355	East Footprint at Mouth of Florida Bay	289541.3382	647554.3518	Red	1.1304	8	12.56	
356	East Footprint at Mouth of Florida Bay	289543.2975	647555.7230	Red	38.465	2	28.26	5
358	East Footprint at Mouth of Florida Bay	289546.8157	647546.8838	Red	12.56	10	12.56	4
359	East Footprint at Mouth of Florida Bay	289548.8667	647544.2688	Red	3.14	16	38.465	2
360	East Footprint at Mouth of Florida Bay	289549.5398	647545.2101	Red	28.26	17	38.465	6
361	East Footprint at Mouth of Florida Bay	289554.1699	647572.4969	Red	19.625	15	28.26	10
362	East Footprint at Mouth of Florida Bay	289551.7518	647555.4621	Red	38.465	14	28.26	7
363	East Footprint at Mouth of Florida Bay	289552.8652	647565.8839	Red	50.24	24	113.04	7
364	East Footprint at Mouth of Florida Bay	289550.2461	647538.2499	Red	12.56	8	38.465	4
365	East Footprint at Mouth of Florida Bay	289559.7131	647550.2484	Red	38.465	24	94.985	6
366	East Footprint at Mouth of Florida Bay	289564.9060	647551.3176	Red	63.585	25	94.985	9
367	East Footprint at Mouth of Florida Bay	289561.6951	647561.9499	Red	19.625	25	78.5	3
368	East Footprint at Mouth of Florida Bay	289560.7117	647549.7903	Red	7.065	24	153.86	
370	East Footprint at Mouth of Florida Bay	289571.1405	647556.3359	Red	28.26	28	132.665	
371	East Footprint at Mouth of Florida Bay	289570.6704	647563.4433	Red	19.625	20	50.24	
372	East Footprint at Mouth of Florida Bay	289564.8134	647538.1671	Red	19.625	20	19.625	4
373	East Footprint at Mouth of Florida Bay	289564.1835	647538.5785	Red	38.465	19	19.625	4
374	East Footprint at Mouth of Florida Bay	289570.9523	647553.8182	Red	38.465	29	176.625	2
375	East Footprint at Mouth of Florida Bay	289569.8746	647565.0759	Red	7.065	22	38.465	
376	East Footprint at Mouth of Florida Bay	289569.3141	647566.3654	Red	63.585	32	153.86	
377	East Footprint at Mouth of Florida Bay	289572.0611	647569.9149	Red	0.1256	12	19.625	
378	East Footprint at Mouth of Florida Bay	289561.8111	647561.4558	Red	78.5	33	379.94	
379	East Footprint at Mouth of Florida Bay	289562.8668	647561.6435	Red	12.56	13	28.26	
380	East Footprint at Mouth of Florida Bay	289568.4100	647573.1029	Red	1.1304	21	63.585	
382	East Footprint at Mouth of Florida Bay	289564.3567	647566.7965	Red	0.1256	13	12.56	
383	East Footprint at Mouth of Florida Bay	289565.5910	647568.4540	Red	0.1256	8	7.065	
387	East Footprint at Mouth of Florida Bay	289565.4425	647575.2950	Red	0.2826	8	38.465	
388	East Footprint at Mouth of Florida Bay	289550.2733	647551.5782	Red	7.065	10	15.89625	
389	East Footprint at Mouth of Florida Bay	289555.5318	647540.7705	Red	78.5	35	226.865	
393	East Footprint at Mouth of Florida Bay	289570.2163	647576.2231	Red	132.665	37	572.265	
408	East Footprint at Mouth of Florida Bay	289579.1041	647569.4033	Red	3.14	35	50.24	
462	East Footprint at Mouth of Florida Bay	289581.5628	647571.5832	Red	78.5	36	153.86	
469	East Footprint at Mouth of Florida Bay	289578.9020	647566.6630	Red	63.585	35	283.385	
471	East Footprint at Mouth of Florida Bay	289569.7741	647551.5086	Red	7.065	8	19.625	3
473	East Footprint at Mouth of Florida Bay	289566.0088	647546.3572	Red	3.14	19	28.26	2
474	East Footprint at Mouth of Florida Bay	289566.4569	647550.4745	Red	0.19625	10	38.465	0.5
475	East Footprint at Mouth of Florida Bay	289572.6385	647544.3880	Red	1.5386	9	28.26	1.4
476	East Footprint at Mouth of Florida Bay	289576.1906	647551.1244	Red	50.24	23	63.585	8
478	East Footprint at Mouth of Florida Bay	289569.3748	647544.5056	Red	28.26	13	113.04	6
479	East Footprint at Mouth of Florida Bay	289580.3084	647550.2780	Red	7.065	8	28.26	3
480	East Footprint at Mouth of Florida Bay	289581.9637	647552.1460	Red	200.96	26	200.96	16
481	East Footprint at Mouth of Florida Bay	289583.0601	647551.8950	Red	254.34	31	254.34	18
502	East Footprint at Mouth of Florida Bay	289584.6405	647562.0668	Red	1.76625	9	12.56	
503	East Footprint at Mouth of Florida Bay	289584.7131	647563.4155	Red	3.14	7	12.56	
504	East Footprint at Mouth of Florida Bay	289587.0984	647563.3374	Red	0.785	10	28.26	
505	East Footprint at Mouth of Florida Bay	289582.4239	647564.0239	Red	28.26	35	176.625	
511	East Footprint at Mouth of Florida Bay	289581.9680	647574.8150	Red	7.065	16	38.465	
2	West Footprint at Mouth of Florida Bay	289468.4916	647497.8397	Red	803.84	28	961.625	112
3	West Footprint at Mouth of Florida Bay	289473.6068	647494.2527	Red	3.14	14	50.24	
5	West Footprint at Mouth of Florida Bay	289493.8289	647474.0730	Red	1.76625	8	12.56	
6	West Footprint at Mouth of Florida Bay	289500.5163	647475.5360	Red	63.585	20	153.86	
7	West Footprint at Mouth of Florida Bay	289499.8492	647477.8284	Red	4.90625	9	19.625	
9	West Footprint at Mouth of Florida Bay	289512.0452	647483.5649	Red	7.065	14	38.465	
11	West Footprint at Mouth of Florida Bay	289519.7175	647481.4028	Red	1.76625	7	12.56	
12	West Footprint at Mouth of Florida Bay	289524.1581	647478.0070	Red	12.56	16	19.625	
13	West Footprint at Mouth of Florida Bay	289523.6460	647478.5813	Red	38.465	15	132.665	
15	West Footprint at Mouth of Florida Bay	289524.4755	647473.9231	Red	3.14	20	28.26	
16	West Footprint at Mouth of Florida Bay	289531.6352	647483.9665	Red	0.785	7	7.065	
17	West Footprint at Mouth of Florida Bay	289530.0058	647481.5922	Red	19.625	23	50.24	
18	West Footprint at Mouth of Florida Bay	289533.5706	647483.1647	Red	28.26	28	38.465	
19	West Footprint at Mouth of Florida Bay	289541.9634	647489.0384	Red	0.785	8	7.065	
20	West Footprint at Mouth of Florida Bay	289542.0851	647488.9634	Red	28.26	15	12.56	
21	West Footprint at Mouth of Florida Bay	289537.9951	647483.0431	Red	50.24	22	38.465	

TABLE 3 - SLAGLE DITCH MANGROVES / FOOTPRINT at FLORIDA BAY

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
23	West Footprint at Mouth of Florida Bay	289531.8506	647481.1892	Red	50.24	24	38.465	
24	West Footprint at Mouth of Florida Bay	289534.9936	647482.8836	Red	12.56	16	19.625	
25	West Footprint at Mouth of Florida Bay	289540.5032	647480.7884	Red	3.14	11	28.26	
26	West Footprint at Mouth of Florida Bay	289542.4379	647475.2146	Red	9.61625	17	38.465	
27	West Footprint at Mouth of Florida Bay	289551.0677	647472.9937	Red	12.56	16	706.5	
28	West Footprint at Mouth of Florida Bay	289550.0779	647474.7698	Red	38.465	20	63.585	
29	West Footprint at Mouth of Florida Bay	289553.2992	647478.1731	Red	28.26	20	63.585	
30	West Footprint at Mouth of Florida Bay	289557.1859	647476.7199	Red	63.585	18	19.625	
31	West Footprint at Mouth of Florida Bay	289577.6750	647473.4249	Red	28.26	22	63.585	
32	West Footprint at Mouth of Florida Bay	289575.6113	647476.8808	Red	38.465	24	132.665	
33	West Footprint at Mouth of Florida Bay	289585.9783	647477.6406	Red	0.0314	9	7.065	
36	West Footprint at Mouth of Florida Bay	289585.3300	647495.1381	Red	28.26	12	78.5	480
37	West Footprint at Mouth of Florida Bay	289581.6170	647495.5756	Red	28.26	18	50.24	24
38	West Footprint at Mouth of Florida Bay	289577.4709	647487.2189	Red	12.56	13	19.625	
39	West Footprint at Mouth of Florida Bay	289575.4255	647487.8556	Red	7.065	10	12.56	
40	West Footprint at Mouth of Florida Bay	289572.8150	647491.8733	Red	38.465	22	153.86	
41	West Footprint at Mouth of Florida Bay	289571.1920	647484.3850	Red	7.065	16	50.24	
42	West Footprint at Mouth of Florida Bay	289569.0449	647490.2987	Red	12.56	11	19.625	
44	West Footprint at Mouth of Florida Bay	289570.6090	647500.6623	Red	63.585	22	132.665	30
45	West Footprint at Mouth of Florida Bay	289565.3387	647499.3524	Red	12.56	13	12.56	
46	West Footprint at Mouth of Florida Bay	289566.2746	647486.6696	Red	0.19625	7	7.065	
47	West Footprint at Mouth of Florida Bay	289561.4902	647487.9109	Red	1.32665	9	12.56	
48	West Footprint at Mouth of Florida Bay	289565.0663	647494.9002	Red	94.985	16	94.985	54
49	West Footprint at Mouth of Florida Bay	289558.3773	647487.5087	Red	19.625	19	38.465	
50	West Footprint at Mouth of Florida Bay	289557.5981	647484.1848	Red	15.89625	20	3.14	
51	West Footprint at Mouth of Florida Bay	289555.7382	647486.5442	Red	9.61625	19	38.465	
52	West Footprint at Mouth of Florida Bay	289552.5485	647485.4787	Red	19.625	21	50.24	
53	West Footprint at Mouth of Florida Bay	289558.9453	647488.7877	Red	7.065	17	63.585	
54	West Footprint at Mouth of Florida Bay	289559.2034	647494.9501	Red	38.465	19	38.465	48
55	West Footprint at Mouth of Florida Bay	289551.0566	647495.5291	Red	28.26	13	28.26	4
56	West Footprint at Mouth of Florida Bay	289554.0648	647490.8542	Red	1.76625	15	38.465	
57	West Footprint at Mouth of Florida Bay	289548.7017	647487.0150	Red	0.07065	11	15.89625	
58	West Footprint at Mouth of Florida Bay	289546.5901	647482.9356	Red	0.785	11	28.26	
59	West Footprint at Mouth of Florida Bay	289544.6203	647486.0553	Red	0.785	12	19.625	
60	West Footprint at Mouth of Florida Bay	289545.2584	647486.4087	Red	3.14	5	38.465	
61	West Footprint at Mouth of Florida Bay	289543.0399	647485.3334	Red	7.065	15	50.24	
62	West Footprint at Mouth of Florida Bay	289541.4670	647491.4022	Red	50.24	23	38.465	
63	West Footprint at Mouth of Florida Bay	289544.6986	647497.0116	Red	153.86	24	615.44	144
64	West Footprint at Mouth of Florida Bay	289536.2650	647494.1141	Red	12.56	14	19.625	
65	West Footprint at Mouth of Florida Bay	289535.8460	647491.4461	Red	9.61625	20	50.24	
66	West Footprint at Mouth of Florida Bay	289537.7128	647488.6755	Red	19.625	14	63.585	
68	West Footprint at Mouth of Florida Bay	289530.4394	647482.5703	Red	19.625	22	78.5	
69	West Footprint at Mouth of Florida Bay	289530.0578	647480.6347	Red	50.24	24	153.86	
70	West Footprint at Mouth of Florida Bay	289532.4801	647485.0564	Red	0.94985	15	50.24	
71	West Footprint at Mouth of Florida Bay	289529.2718	647490.4324	Red	19.625	20	50.24	
72	West Footprint at Mouth of Florida Bay	289527.2312	647492.4818	Red	28.26	9	19.625	
73	West Footprint at Mouth of Florida Bay	289533.4178	647493.2403	Red	38.465	14	50.24	48
74	West Footprint at Mouth of Florida Bay	289530.4924	647493.0900	Red	12.56	14	19.625	5
75	West Footprint at Mouth of Florida Bay	289526.7845	647497.3360	Red	6.1544	6	12.56	4
77	West Footprint at Mouth of Florida Bay	289522.9048	647499.7290	Red	19.625	5	19.625	
78	West Footprint at Mouth of Florida Bay	289523.6873	647500.3895	Red	38.465	19	50.24	8
79	West Footprint at Mouth of Florida Bay	289517.9508	647503.9244	Red	28.26	11	19.625	
80	West Footprint at Mouth of Florida Bay	289522.8744	647493.7710	Red	0.07065	9	12.56	
81	West Footprint at Mouth of Florida Bay	289515.3314	647486.2698	Red	28.26	17	38.465	
82	West Footprint at Mouth of Florida Bay	289523.1683	647490.8128	Red	50.24	13	28.26	
83	West Footprint at Mouth of Florida Bay	289520.3976	647505.6573	Red	38.465	14	38.465	7
84	West Footprint at Mouth of Florida Bay	289520.9526	647505.2648	Red	19.625	15	28.26	72
85	West Footprint at Mouth of Florida Bay	289515.3041	647502.9960	Red	28.26	6	28.26	75
86	West Footprint at Mouth of Florida Bay	289511.5854	647501.5450	Red	63.585	16	63.585	
87	West Footprint at Mouth of Florida Bay	289515.6238	647491.0133	Red	28.26	12	19.625	
88	West Footprint at Mouth of Florida Bay	289515.0454	647491.2715	Red	19.625	12	12.56	4
89	West Footprint at Mouth of Florida Bay	289511.9744	647490.9660	Red	7.065	11	19.625	5
90	West Footprint at Mouth of Florida Bay	289510.3043	647492.4605	Red	3.14	10	28.26	
91	West Footprint at Mouth of Florida Bay	289507.8134	647493.5457	Red	7.065	15	50.24	
92	West Footprint at Mouth of Florida Bay	289507.1010	647496.5571	Red	38.465	23	78.5	24

TABLE 3 - SLAGLE DITCH MANGROVES / FOOTPRINT at FLORIDA BAY

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
93	West Footprint at Mouth of Florida Bay	289506.5636	647499.0770	Red	7.065	7	12.56	4
94	West Footprint at Mouth of Florida Bay	289500.9535	647497.0406	Red	0.785	7	12.56	
95	West Footprint at Mouth of Florida Bay	289500.3212	647493.3405	Red	38.465	30	132.665	
96	West Footprint at Mouth of Florida Bay	289502.5356	647493.8578	Red	19.625	13	28.26	10
97	West Footprint at Mouth of Florida Bay	289499.2846	647493.4430	Red	38.465	22	63.585	
98	West Footprint at Mouth of Florida Bay	289497.8852	647495.8487	Red	38.465	23	50.24	48
99	West Footprint at Mouth of Florida Bay	289499.1177	647496.2583	Red	12.56	25	50.24	8
100	West Footprint at Mouth of Florida Bay	289490.9245	647492.0702	Red	28.26	9	12.56	6
101	West Footprint at Mouth of Florida Bay	289483.4594	647490.9584	Red	19.625	28	176.625	

TABLE 4 - SLAGLE DITCH MANGROVES / FOOTPRINT at COASTAL PRAIRIE TRAIL

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
1	Footprint	291354.9319	647481.4342	Red	200.96	24	615.44	
2	Footprint	291366.5302	647484.8316	Red	28.26	14	19.625	
3	Footprint	291366.6275	647481.5259	Red	28.26	15	38.465	
4	Footprint	291367.1586	647481.7052	Red	50.24	16	19.625	
5	Footprint	291355.9120	647486.2060	Red	63.585	22	50.24	
6	Footprint	291355.1387	647482.3979	Red	7.065	16	19.625	
7	Footprint	291357.5294	647484.0730	Red	7.065	13	12.56	
8	Footprint	291353.3868	647485.1477	Red	38.465	19	50.24	
9	Footprint	291358.4612	647491.6300	Red	94.985	17	113.04	
10	Footprint	291365.9904	647488.6092	Red	132.665	28	254.34	
11	Footprint	291365.0321	647489.8364	Red	38.465	14	28.26	
12	Footprint	291361.1170	647492.7497	Red	12.56	15	50.24	
13	Footprint	291357.7787	647492.3926	Red	7.065	14	50.24	
14	Footprint	291360.8001	647493.6006	Red	3.14	14	38.465	
15	Footprint	291365.9333	647496.1171	Red	28.26	12	78.5	
16	Footprint	291366.8425	647497.6481	Red	12.56	13	50.24	
17	Footprint	291356.0169	647500.9521	Red	28.26	14	78.5	
18	Footprint	291363.7938	647501.7974	Red	12.56	15	50.24	
19	Footprint	291361.8874	647504.2684	Red	19.625	14	38.465	
20	Footprint	291369.8322	647501.8064	Red	176.625	29	254.34	
21	Footprint	291357.6209	647504.8121	Red	5.3066	15	12.56	
22	Footprint	291356.0469	647500.1573	Red	153.86	19	153.86	
23	Footprint	291372.2700	647497.5479	Red	12.56	12	38.465	
24	Footprint	291358.0727	647500.5090	Red	3.14	10	19.625	
25	Footprint	291356.4280	647503.1778	Red	6.1544	11	28.26	
26	Footprint	291355.4067	647501.3559	Red	19.625	23	94.985	
27	Footprint	291361.0511	647504.8514	Red	19.625	15	28.26	
28	Footprint	291367.5536	647510.4851	Red	28.26	18	78.5	
29	Footprint	291353.9565	647513.6393	Red	50.24	26	200.96	
30	Footprint	291355.0821	647516.5340	Red	50.24	18	113.04	
31	Footprint	291367.6912	647513.2818	Red	50.24	28	153.86	
32	Footprint	291367.7240	647511.3395	Red	314	29	706.5	
33	Footprint	291362.7595	647514.0435	Red	0.5024	8	7.065	
34	Footprint	291375.3825	647515.5583	Red	12.56	12	63.585	
35	Footprint	291374.3340	647515.2807	Red	3.14	8	38.465	
36	Footprint	291374.7374	647517.0496	Red	28.26	18	78.5	
37	Footprint	291371.5320	647517.5243	Red	78.5	12	28.26	
38	Footprint	291359.2924	647517.3941	Red	1.1304	7	12.56	
39	Footprint	291393.0158	647509.1051	Red	0.1256	9	12.56	
40	Footprint	291392.4904	647493.5709	Red	0.785	8	19.625	
41	Footprint	291392.4955	647490.7014	Red	1.76625	14	38.465	
42	Footprint	291391.5841	647486.7951	Red	3.14	12	50.24	

TABLE 5 - SLAGLE DITCH MANGROVES / APPROACH

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Prop Root Height (in)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
1	East Approach	289593.8347	647546.9135	White	0		7.065	42
2	East Approach	289594.8546	647547.2823	Red	19.625	12	28.26	12
3	East Approach	289598.2234	647545.8017	Red	7.065	15	28.26	6
4	East Approach	289612.5915	647543.0739	Red	12.56	20	12.56	4
5	East Approach	289615.5494	647542.7960	Red	50.24	18	63.585	9
6	East Approach	289622.6752	647542.9066	Red	38.465	16	12.56	4
7	East Approach	289628.2160	647538.1408	Black	0		38.465	7
8	East Approach	289629.2749	647538.0932	Black	0		50.24	8
9	East Approach	289632.8438	647537.0656	Red	38.465	41	38.465	7
10	East Approach	289635.7264	647533.7938	Red	28.26	20	38.465	7
11	East Approach	289637.3481	647534.9613	Red	19.625	26	50.24	8
12	East Approach	289650.9975	647543.4879	Black	0		63.585	9
13	East Approach	289654.6469	647542.4075	Red	38.465	24	153.86	140
14	East Approach	289657.6266	647541.4253	Red	12.56	15	38.465	7
15	East Approach	289665.9257	647540.9359	Red	7.065	16	7.065	6
16	East Approach	289667.3653	647540.8985	Red	12.56	13	12.56	4
17	East Approach	289672.4832	647539.1395	Red	3.14	12	7.065	15
18	East Approach	289674.1646	647541.6426	Red	12.56	21	19.625	5
19	East Approach	289675.0694	647542.4778	Red	7.065	12	7.065	3
20	East Approach	289676.9485	647542.4082	Red	3.14	5	12.56	4
21	East Approach	289683.9326	647539.5820	White	0		12.56	28
22	East Approach	289688.6508	647538.6140	Red	3.14	10	12.56	4
23	East Approach	289689.7543	647538.3716	Red	19.625	25	12.56	4
24	East Approach	289691.8186	647534.6713	Red	3.14	14	28.26	6
25	East Approach	289701.0429	647542.1893	Red	12.56	13	12.56	4
26	East Approach	289708.3106	647543.1014	Red	19.625	6	19.625	5
27	East Approach	289717.8309	647541.3639	Red	38.465	15	7.065	3
28	East Approach	289718.7652	647547.3438	Red	12.56	7	12.56	4
29	East Approach	289723.0801	647547.9122	White	0		113.04	12
30	East Approach	289724.0654	647548.3239	Red	132.665	15	94.985	77
31	East Approach	289726.1533	647548.4631	Red	113.04	10	38.465	7
32	East Approach	289738.6181	647546.5983	Red	7.065	12	19.625	5
33	East Approach	289747.2967	647540.6208	Red	38.465	17	38.465	7
34	East Approach	289750.4371	647545.5467	Black	0		200.96	21
35	East Approach	289751.7648	647546.1664	Red	28.26	20	12.56	4
36	East Approach	289753.8527	647547.0015	Red	12.56	13	7.065	3
37	East Approach	289759.6232	647547.1441	Red	19.625	22	12.56	24
38	East Approach	289763.1041	647550.6706	Red	19.625	20	7.065	2
39	East Approach	289770.3708	647550.9464	Black	0		38.465	24
40	East Approach	289775.3459	647549.6008	Red	12.56	25	28.26	6
41	East Approach	289783.6399	647550.4463	White	0		50.24	28
42	East Approach	289803.8936	647553.7194	Red	19.625	32	63.585	54
43	East Approach	289805.5630	647552.4997	Black	0		38.465	7
44	East Approach	289813.0480	647551.1556	Black	0		38.465	7
45	East Approach	289820.8160	647554.6138	Black	0		63.585	36
46	East Approach	289823.4871	647552.6732	White	0		38.465	7
47	East Approach	289832.0819	647555.2203	White	0		28.26	6
48	East Approach	289837.3712	647556.4013	White	0		28.26	6
49	East Approach	289838.8997	647556.5363	White	0		28.26	6
50	East Approach	289843.3859	647555.7944	White	0		50.24	
51	East Approach	289852.2790	647553.4929	Black	0		50.24	3
52	East Approach	289871.2947	647553.5963	Red	113.04	15	38.465	7
53	East Approach	289890.1497	647555.9312	Red	132.665	62	63.585	9
54	East Approach	289917.7584	647551.4871	Black	0		3.14	2
55	East Approach	289923.4400	647555.1653	White	0		50.24	
56	East Approach	289953.1320	647556.2979	Black	0		28.26	6

TABLE 5 - SLAGLE DITCH MANGROVES / APPROACH

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Prop Root Height (in)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
57	East Approach	289978.2262	647551.3156	Black	0		1256	21
58	East Approach	289994.4775	647553.8899	Red	12.56	30	28.26	6
59	East Approach	289998.6528	647553.7271	Red	28.26	14	7.065	3
60	East Approach	290009.9374	647550.5191	Black	0		200.96	6
61	East Approach	290021.5851	647553.5659	Black	0		78.5	63
62	East Approach	290034.0175	647554.6541	Black	0		200.96	4
63	East Approach	290041.1630	647556.5832	Red	113.04	62	28.26	6
64	East Approach	290050.6027	647552.7969	Red	50.24	120	38.465	24
65	East Approach	290052.8310	647552.3473	Red	28.26	13	78.5	56
66	East Approach	290062.6173	647554.9373	Red	50.24	20	63.585	42
67	East Approach	290079.9234	647553.0345	Red	28.26	33	63.585	72
68	East Approach	290090.4107	647550.0934	Red	7.065	13	19.625	5
69	East Approach	290092.6488	647551.1077	Red	7.065	16	38.465	7
70	East Approach	290112.8505	647549.7743	Red	19.625	26	78.5	63
71	East Approach	290133.0338	647550.1806	Red	153.86	50	176.625	15
72	East Approach	290143.1747	647550.9663	Black	0		28.26	6
73	East Approach	290181.5014	647550.5213	Red	3.14	4	7.065	9
74	East Approach	290187.9977	647553.2734	Black	0		38.465	7
75	East Approach	290192.3530	647554.2332	Black	0		12.56	4
76	East Approach	290201.0562	647556.5536	Red	12.56	9	3.14	2
77	East Approach	290215.5866	647548.2900	Red	19.625	18	28.26	6
78	East Approach	290220.1198	647549.4922	Red	38.465	20	200.96	12
79	East Approach	290228.2056	647546.2261	White	0		28.26	24
80	East Approach	290228.9885	647546.5840	Red	7.065	15	38.465	30
81	East Approach	290230.7083	647546.9478	Red	153.86	28	153.86	72
82	East Approach	290239.7510	647548.6827	Red	7.065	11	12.56	21
83	East Approach	290252.1338	647547.4939	Red	176.625	30	200.96	42
84	East Approach	290252.7890	647547.0564	White	0		28.26	30
85	East Approach	290253.1596	647546.9721	Red	28.26	38	50.24	8
86	East Approach	290258.4089	647544.9737	Red	50.24	110	153.86	14
87	East Approach	290265.3443	647546.1393	Red	3.14	11	28.26	6
88	East Approach	290266.6402	647545.8184	Red	7.065	8	19.625	5
89	East Approach	290269.1852	647544.9824	Red	12.56	60	28.26	30
90	East Approach	290271.1234	647543.4626	Red	12.56	16	38.465	7
91	East Approach	290273.6335	647539.7094	Red	38.465	46	78.5	56
92	East Approach	290288.9122	647534.0839	Red	12.56	48	153.86	36
93	East Approach	290298.6467	647534.0245	Black	0		19.625	60
94	East Approach	290300.2512	647532.5185	White	0		19.625	5
95	East Approach	290310.3187	647531.2599	Red	3.14	10	7.065	18
96	East Approach	290314.2863	647529.5083	White	0		78.5	10
97	East Approach	290317.4836	647526.0801	Red	7.065	14	28.26	6
98	East Approach	290320.5997	647525.3632	Red	38.465	20	50.24	4
99	East Approach	290323.1705	647523.5125	White	0		12.56	12
100	East Approach	290324.5300	647522.2847	White	0		19.625	35
101	East Approach	290325.9504	647521.0951	White	0		12.56	12
102	East Approach	290328.0213	647520.6169	Black	0		28.26	54
103	East Approach	290331.2985	647519.6571	White	0		28.26	6
104	East Approach	290333.0024	647518.1973	Red	7.065	10	12.56	4
105	East Approach	290334.0419	647516.7799	Red	3.14	8	7.065	3
106	East Approach	290336.5245	647516.2685	Red	19.625	16	38.465	7
107	East Approach	290341.4316	647514.1406	Red	0.785	14	19.625	5
108	East Approach	290348.8229	647512.6830	Red	176.625	96	1256	63
109	East Approach	290359.2192	647517.1607	White	0		12.56	4
110	East Approach	290367.6262	647515.9761	Red	0.785	14	7.065	3
111	East Approach	290369.5852	647513.0715	Red	38.465	29	63.585	54
112	East Approach	290376.8885	647513.5404	White	0		78.5	10

TABLE 5 - SLAGLE DITCH MANGROVES / APPROACH

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Prop Root Height (in)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
113	East Approach	290380.7755	647514.8127	White	0		63.585	54
114	East Approach	290383.5578	647516.7811	Red	38.465	45	200.96	80
115	East Approach	290385.6113	647519.6445	White	0		50.24	48
116	East Approach	290386.6036	647521.3853	Red	3.14	12	12.56	4
117	East Approach	290387.2753	647524.3941	White	0		7.065	8
118	East Approach	290388.4379	647525.7581	Red	3.14	11	28.26	6
119	East Approach	290388.8519	647527.1701	Red	12.56	19	50.24	48
120	East Approach	290389.8328	647529.2904	Red	28.26	26	7.065	3
121	East Approach	290392.1367	647533.4861	White	0		63.585	9
122	East Approach	290402.8107	647542.0532	Red	38.465	25	50.24	8
123	East Approach	290404.4182	647544.3477	White	0		38.465	7
124	East Approach	290405.2831	647547.3890	Red	63.585	20	254.34	126
125	East Approach	290411.4644	647559.8604	White	0		7.065	6
126	East Approach	290412.7720	647565.3790	Red	3.14	14	38.465	28
127	East Approach	290413.2883	647570.4860	White	0		94.985	33
128	East Approach	290413.0468	647573.6838	Red	19.625	21	113.04	240
129	East Approach	290416.1535	647578.7886	White	0		7.065	3
130	East Approach	290416.3134	647582.2896	White	0		7.065	3
131	East Approach	290415.7384	647585.0337	Red	3.14	10	7.065	3
132	East Approach	290416.4879	647589.5834	White	0		28.26	48
133	East Approach	290418.0201	647596.6531	Red	19.625	36	7.065	3
134	East Approach	290418.6090	647599.0352	White	0		7.065	21
135	East Approach	290418.5233	647601.0138	Red	19.625	40	7.065	3
1	West Approach	289596.9732	647490.1907	Black	0		78.5	60
2	West Approach	289597.8204	647490.1905	Red	3.14	11	12.56	21
3	West Approach	289596.0599	647492.0379	Red	3.14	11	12.56	21
4	West Approach	289609.6206	647495.2878	Black	0		12.56	36
5	West Approach	289614.5965	647499.5782	Black	0		0.785	8
6	West Approach	289619.9428	647497.5947	Red	132.665	12	28.26	120
7	West Approach	289621.3278	647495.8556	Red	0.785	10	7.065	27
8	West Approach	289623.1127	647495.0603	Black	0		38.465	7
9	West Approach	289624.6321	647495.5937	Red	0.1256	4	7.065	3
10	West Approach	289626.3497	647496.6687	Red	3.14	14	7.065	3.3
11	West Approach	289628.5816	647495.8564	Red	38.465	17	38.465	
12	West Approach	289629.5576	647495.0155	Red	38.465	16	38.465	7
13	West Approach	289635.7113	647498.1770	Red	113.04	14	38.465	7
14	West Approach	289636.7577	647498.7998	Red	38.465	13	7.065	6
15	West Approach	289637.7193	647499.3633	Red	50.24	14	38.465	7
16	West Approach	289638.3604	647498.3369	Red	3.14	10	3.14	2
17	West Approach	289639.3118	647498.4016	Red	63.585	16	63.585	96
18	West Approach	289640.1943	647496.4546	Red	28.26	15	12.56	15
19	West Approach	289641.9973	647494.7203	Red	7.065	14	7.065	3
20	West Approach	289644.5614	647491.2171	Red	78.5	18	19.625	35
21	West Approach	289647.3574	647488.0227	Red	28.26	16	19.625	5
22	West Approach	289649.0718	647487.6732	Red	12.56	12	12.56	4
23	West Approach	289651.0049	647486.7066	Black	0		63.585	9
24	West Approach	289652.4787	647486.2937	Red	19.625	15	50.24	48
25	West Approach	289662.7320	647486.7711	Red	254.34	24	78.5	10
26	West Approach	289663.7358	647486.7973	Red	153.86	38	50.24	18
27	West Approach	289674.4351	647485.1869	Red	12.56	20	12.56	4
28	West Approach	289675.1718	647486.3217	Red	1.76625	13	7.065	3
29	West Approach	289676.6073	647486.9677	Red	0.785	6	3.14	2
30	West Approach	289677.5643	647487.6615	Red	19.625	11	12.56	4
31	West Approach	289678.7494	647491.0280	Red	7.065	14	12.56	36
32	West Approach	289679.0130	647489.5601	Red	28.26	14	12.56	8
33	West Approach	289679.2869	647488.7620	Red	3.14	16	7.065	3

TABLE 5 - SLAGLE DITCH MANGROVES / APPROACH

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Prop Root Height (in)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
34	West Approach	289679.5812	647487.8830	Red	78.5	48	19.625	12
35	West Approach	289680.7038	647487.4116	White	0		28.26	6
36	West Approach	289681.6303	647487.4814	Red	7.065	12	7.065	3
37	West Approach	289702.6885	647495.1398	Red	28.26	20	63.585	64
38	West Approach	289703.9021	647494.8233	White	0		38.465	36
39	West Approach	289709.8260	647492.9579	Black	0		28.26	36
40	West Approach	289712.9935	647491.4758	White	0		7.065	3
41	West Approach	289719.1249	647492.0872	White	0		38.465	7
42	West Approach	289724.2988	647494.7466	White	0		3.14	14
43	West Approach	289726.5635	647491.0903	White	0		19.625	5
44	West Approach	289733.0572	647492.2756	Red	3.14	18	12.56	4
45	West Approach	289739.7367	647493.1370	Red	7.065	4	28.26	6
46	West Approach	289773.0149	647490.5738	Red	176.625	20	200.96	48
47	West Approach	289796.5883	647491.2137	White	0		12.56	4
48	West Approach	289799.9164	647491.8363	Red	176.625	36	452.16	24
49	West Approach	289818.3149	647498.8413	Red	7.065	17	19.625	5
50	West Approach	289827.9658	647494.1898	Red	12.56	20	7.065	5
51	West Approach	289838.7807	647491.2737	Black	0		28.26	24
52	West Approach	289843.3570	647494.7335	White	0		12.56	
53	West Approach	289857.1729	647497.2424	White	0		7.065	3
54	West Approach	289858.4145	647498.4185	Red	7.065	17	7.065	3
55	West Approach	289893.7937	647493.5033	Red	3.14	24	452.16	24
56	West Approach	289895.5381	647491.9864	Red	19.625	35	28.26	6
57	West Approach	289911.4170	647490.1662	Red	19.625	40	50.24	8
58	West Approach	289914.8863	647489.9762	Black	0		132.665	12
59	West Approach	289921.9796	647491.7820	Black	0		200.96	320
60	West Approach	289934.2236	647492.1861	Red	12.56	21	50.24	8
61	West Approach	289945.3142	647494.2073	White	0		28.26	24
62	West Approach	289948.5702	647491.2746	White	0		12.56	24
64	West Approach	289959.8993	647491.7258	White	0		12.56	18
65	West Approach	289971.5715	647490.3775	White	0		12.56	20
66	West Approach	289976.0843	647488.8229	White	0		28.26	48
67	West Approach	289980.2436	647491.3174	White	0		12.56	4
68	West Approach	289993.7732	647489.9012	Red	0		12.56	20
69	West Approach	289987.3996	647490.2328	White	0		12.56	4
70	West Approach	290015.0985	647489.8680	Red	7.065	32	28.26	6
71	West Approach	289996.9045	647490.9165	White	0		50.24	48
72	West Approach	290073.9896	647489.2939	Black	0		63.585	108
73	West Approach	290049.0543	647489.0619	White	0		12.56	4
74	West Approach	290086.1338	647488.3560	White	0		28.26	6
75	West Approach	290104.6677	647488.8835	Black	0		12.56	20
76	West Approach	290106.9520	647490.3285	Red	0.19625	10	3.14	2
77	West Approach	290109.9659	647489.2707	Black	0		12.56	4
78	West Approach	290111.8498	647488.6048	Red	0.785	4	19.625	20
79	West Approach	290097.7296	647490.1776	White	0		94.985	88
80	West Approach	290146.9879	647493.7559	Red	153.86	16	63.585	9
81	West Approach	290139.5983	647496.2140	White	0		254.34	360
82	West Approach	290161.0041	647493.4173	White	0		50.24	8
83	West Approach	290172.8795	647492.9547	White	0		50.24	48
84	West Approach	290183.1180	647495.3518	White	0		314	480
85	West Approach	290189.6757	647494.9238	Red	0.785	4	7.065	3
86	West Approach	290193.4068	647495.4041	Red	0.785	4	12.56	4
87	West Approach	290202.7269	647490.1656	Black/White	0		254.34	56
88	West Approach	290210.8664	647493.8532	Black	0		12.56	4
89	West Approach	290242.1621	647482.4972	Black	0		3.14	16
90	West Approach	290251.0740	647482.3162	Red	12.56	15	19.625	5

TABLE 5 - SLAGLE DITCH MANGROVES / APPROACH

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Prop Root Height (in)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
91	West Approach	290255.3053	647484.4739	Red	12.56	16	3.14	10
92	West Approach	290256.8120	647483.5746	Red	12.56	15	3.14	8
93	West Approach	290259.6812	647484.5609	Red	28.26	12	50.24	48
94	West Approach	290265.0392	647479.3195	Red	19.625	21	63.585	9
95	West Approach	290269.6425	647476.1616	Red	7.065	13	7.065	3
96	West Approach	290271.5604	647475.5887	Red	7.065	18	38.465	7
97	West Approach	290273.6513	647476.4990	Red	12.56	19	63.585	9
98	West Approach	290278.0522	647476.3421	Red	12.56	19	12.56	4
99	West Approach	290278.4465	647476.1258	Red	7.065	10	12.56	4
100	West Approach	290281.7351	647474.7870	Red	38.465	18	78.5	10
101	West Approach	290284.0573	647471.9744	Red	0.785	8	7.065	3
102	West Approach	290290.9322	647468.5277	Red	3.14	13	4.90625	2.5
103	West Approach	290296.3149	647467.3981	Black	0		3.14	2
104	West Approach	290313.0648	647458.9574	White	0		3.14	2
105	West Approach	290317.1397	647458.4014	Red	132.665	27	132.665	13
106	West Approach	290327.5093	647460.7511	Red	176.625	40	452.16	24
107	West Approach	290340.9938	647454.1320	White	0		12.56	4
108	West Approach	290347.0993	647452.5752	Black	0		19.625	5
109	West Approach	290352.5902	647455.8390	Red	19.625	20	28.26	6
110	West Approach	290357.0188	647453.4292	Red	19.625	18	7.065	10
111	West Approach	290357.6933	647453.0172	Red	3.14	24	12.56	4
112	West Approach	290362.0243	647453.3915	Red	12.56	20	12.56	4
113	West Approach	290365.0957	647452.8014	Red	7.065	20	19.625	5
114	West Approach	290369.7431	647452.9275	Red	12.56	19	12.56	32
115	West Approach	290371.4368	647454.6419	White	0		12.56	24
116	West Approach	290377.9484	647457.5064	Black	0		12.56	32
117	West Approach	290384.4425	647457.1987	White	0		50.24	8
118	West Approach	290391.9040	647457.4910	White	0		7.065	3
119	West Approach	290434.6375	647486.0104	Red	7.065	10	7.065	21
120	West Approach	290449.2355	647502.4971	Red	50.24	24	50.24	8
121	West Approach	290455.2488	647512.3252	Red	0.785	8	12.56	4
122	West Approach	290458.8420	647522.2180	White	0		38.465	42
123	West Approach	290464.6805	647527.0848	Red	7.065	25	38.465	56
124	West Approach	290468.8678	647540.1412	Red	0.785	17	63.585	9
125	West Approach	290461.8495	647547.0762	White	0		7.065	3
126	West Approach	290474.2491	647553.6361	Red	3.14	25	3.14	6
127	West Approach	290476.4297	647559.4295	Red	3.14	23	7.065	8
128	West Approach	290477.2319	647565.8788	Red	63.585	9	28.26	6
129	West Approach	290479.8191	647578.2992	Red	7.065	19	3.14	24
130	West Approach	290478.1442	647584.0798	White	0		12.56	4
131	West Approach	290477.0541	647585.4847	Red	12.56	23	12.56	4
132	West Approach	290476.2835	647587.6448	Black	0		63.585	9
133	West Approach	290475.7046	647589.6980	White	0		78.5	10
134	West Approach	290475.6156	647591.2870	Red	19.625	18	28.26	6
135	West Approach	290476.4371	647597.3736	Red	28.26	35	38.465	7
136	West Approach	290476.1361	647599.6987	White	0		28.26	6
137	West Approach	290481.7120	647612.6675	Red	19.625	18	50.24	16
138	West Approach	290481.3866	647615.6901	White	0		63.585	63
139	West Approach	290479.4468	647620.0022	Black	0		1017.36	720

HOUSE DITCH

TABLE 6 - HOUSE DITCH MANGROVES / FOOTPRINT at FLORIDA BAY

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
1	East Footprint at Mouth of Florida Bay	289053.2352	639549.0935	Red	176.625	22	254.34	
2	East Footprint at Mouth of Florida Bay	289052.6203	639551.7975	Red	113.04	19	254.34	
3	East Footprint at Mouth of Florida Bay	289049.7051	639542.7058	Red	200.96	24	615.44	
4	East Footprint at Mouth of Florida Bay	289047.4566	639541.5221	Red	176.625	21	314	
5	East Footprint at Mouth of Florida Bay	289044.318	639536.9727	Red	615.44	27	961.625	450
6	East Footprint at Mouth of Florida Bay	289053.9616	639552.5076	Red	254.34	26	314	60
7	East Footprint at Mouth of Florida Bay	289060.4595	639541.6666	Red	19.625	17	38.465	6
8	East Footprint at Mouth of Florida Bay	289056.8858	639550.9375	Red	28.26	11	19.625	
9	East Footprint at Mouth of Florida Bay	289058.134	639551.4525	Red	38.465	16	50.24	
10	East Footprint at Mouth of Florida Bay	289061.6062	639550.9518	Red	63.585	13	50.24	
11	East Footprint at Mouth of Florida Bay	289067.318	639548.4985	Red	7.065	6	12.56	
12	East Footprint at Mouth of Florida Bay	289076.2139	639539.7294	Red	113.04	25	153.86	
13	East Footprint at Mouth of Florida Bay	289080.0291	639532.7306	Red	854.865	30	907.46	520
14	East Footprint at Mouth of Florida Bay	289092.0681	639545.8143	Red	1017.36	30	1451.465	1330
15	East Footprint at Mouth of Florida Bay	289109.5028	639535.9703	Red	176.625	24	200.96	192
16	East Footprint at Mouth of Florida Bay	289109.4498	639536.7771	Red	132.665	21	38.465	7
17	East Footprint at Mouth of Florida Bay	289106.0831	639533.3249	Red	12.56	11	12.56	4
18	East Footprint at Mouth of Florida Bay	289110.246	639533.7307	Red	50.24	22	63.585	9
19	East Footprint at Mouth of Florida Bay	289113.0903	639530.4983	Red	200.96	29	132.665	13
20	East Footprint at Mouth of Florida Bay	289107.6861	639534.2632	Red	176.625	26	78.5	10
21	East Footprint at Mouth of Florida Bay	289108.8264	639534.619	Red	63.585	29	113.04	54
22	East Footprint at Mouth of Florida Bay	289109.8621	639543.4342	Red	132.665	27	132.665	14
23	East Footprint at Mouth of Florida Bay	289117.4824	639531.7129	Red	0.19625	6	7.065	
24	East Footprint at Mouth of Florida Bay	289114.8037	639541.1251	Red	6.1544	19	38.465	
25	East Footprint at Mouth of Florida Bay	289118.6551	639539.6301	Red	7.065	8	19.625	
26	East Footprint at Mouth of Florida Bay	289124.6721	639545.5681	Red	63.585	19	38.465	
27	East Footprint at Mouth of Florida Bay	289121.5354	639541.6689	Red	226.865	25	226.865	70
28	East Footprint at Mouth of Florida Bay	289123.8994	639540.8278	Red	961.625	29	530.66	216
30	East Footprint at Mouth of Florida Bay	289115.0585	639549.371	Red	1.76625	14	113.04	
31	East Footprint at Mouth of Florida Bay	289116.6916	639550.4933	Red	3.14	11	28.26	
32	East Footprint at Mouth of Florida Bay	289126.5675	639555.2855	Red	19.625	14	254.34	
33	East Footprint at Mouth of Florida Bay	289126.6056	639548.4703	Red	63.585	27	153.86	
34	East Footprint at Mouth of Florida Bay	289127.4344	639549.5341	Red	7.065	22	63.585	
35	East Footprint at Mouth of Florida Bay	289134.0509	639550.271	Red	530.66	33	452.16	
36	East Footprint at Mouth of Florida Bay	289138.8222	639553.1046	Red	7.065	14	63.585	
37	East Footprint at Mouth of Florida Bay	289138.273	639554.2341	Red	12.56	16	50.24	
38	East Footprint at Mouth of Florida Bay	289139.472	639553.9943	Red	7.065	8	78.5	
39	East Footprint at Mouth of Florida Bay	289134.2445	639559.3657	Red	28.26	22	50.24	
40	East Footprint at Mouth of Florida Bay	289128.9991	639557.3881	Red	0.5024	13	113.04	
41	East Footprint at Mouth of Florida Bay	289133.9199	639552.5735	Red	0.785	11	38.465	
43	East Footprint at Mouth of Florida Bay	289136.1426	639540.8204	Red	153.86	29	803.84	120
44	East Footprint at Mouth of Florida Bay	289133.6782	639546.7814	Red	12.56	9	38.465	7
45	East Footprint at Mouth of Florida Bay	289131.6269	639532.5889	Red	7.065	7	38.465	7
46	East Footprint at Mouth of Florida Bay	289130.476	639528.4504	Red	28.26	23	50.24	8
47	East Footprint at Mouth of Florida Bay	289141.9623	639538.4036	Red	0.785	7	7.065	
48	East Footprint at Mouth of Florida Bay	289141.5822	639537.4965	Red	0.5024	8	12.56	4
13	West Footprint at Mouth of Florida Bay	289056.6268	639487.078	Red	113.04	26	153.86	14
14	West Footprint at Mouth of Florida Bay	289057.7617	639494.6323	Red	153.86	27	153.86	14
15	West Footprint at Mouth of Florida Bay	289052.0099	639487.4924	Red	379.94	23	961.625	
16	West Footprint at Mouth of Florida Bay	289061.9942	639483.4949	Red	38.465	14	38.465	
17	West Footprint at Mouth of Florida Bay	289066.5814	639485.4706	Red	28.26	16	50.24	
18	West Footprint at Mouth of Florida Bay	289059.9623	639479.2528	Red	38.465	17	19.625	
19	West Footprint at Mouth of Florida Bay	289053.494	639470.4257	Red	12.56	11	19.625	
20	West Footprint at Mouth of Florida Bay	289061.2751	639493.805	Red	572.265	24	490.625	25
21	West Footprint at Mouth of Florida Bay	289062.5661	639490.1241	Red	314	21	132.665	13
22	West Footprint at Mouth of Florida Bay	289049.4908	639482.8487	Red	28.26	13	50.24	
23	West Footprint at Mouth of Florida Bay	289066.7156	639472.8542	Red	6.60185	13	12.56	
24	West Footprint at Mouth of Florida Bay	289066.4596	639476.2711	Red	19.625	17	63.585	
25	West Footprint at Mouth of Florida Bay	289075.4176	639473.8661	Red	0.0314	7	7.065	
26	West Footprint at Mouth of Florida Bay	289076.1597	639474.2033	Red	6.60185	15	50.24	
27	West Footprint at Mouth of Florida Bay	289071.5988	639480.8669	Red	7.065	12	28.26	

TABLE 6 - HOUSE DITCH MANGROVES / FOOTPRINT at FLORIDA BAY

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
28	West Footprint at Mouth of Florida Bay	289075.2877	639479.4991	Red	63.585	27	176.625	15
29	West Footprint at Mouth of Florida Bay	289072.7072	639487.5773	Red	153.86	26	200.96	
30	West Footprint at Mouth of Florida Bay	289073.5963	639488.7741	Red	0.785	9	7.065	
31	West Footprint at Mouth of Florida Bay	289074.4357	639489.2139	Red	12.56	13	38.465	7
32	West Footprint at Mouth of Florida Bay	289077.1553	639491.3201	Red	615.44	33	490.625	25
33	West Footprint at Mouth of Florida Bay	289076.5327	639485.6463	Red	706.5	30	615.44	700
34	West Footprint at Mouth of Florida Bay	289077.7786	639486.1433	Red	3.14	5	19.625	
35	West Footprint at Mouth of Florida Bay	289085.0061	639492.5926	Red	379.94	19	50.24	8
36	West Footprint at Mouth of Florida Bay	289083.92	639490.0916	Red	4.90625	17	19.625	
37	West Footprint at Mouth of Florida Bay	289088.6393	639478.0484	Red	7.065	13	38.465	
38	West Footprint at Mouth of Florida Bay	289089.3813	639479.8698	Red	12.56	6	7.065	
39	West Footprint at Mouth of Florida Bay	289090.1908	639478.4532	Red	0.19625	9	7.065	
40	West Footprint at Mouth of Florida Bay	289091.405	639478.3857	Red	0.07065	9	19.625	
41	West Footprint at Mouth of Florida Bay	289091.8772	639480.7467	Red	3.14	19	38.465	
42	West Footprint at Mouth of Florida Bay	289093.3613	639476.8342	Red	3.14	8	19.625	
43	West Footprint at Mouth of Florida Bay	289097.5436	639477.2389	Red	0.785	8	12.56	
44	West Footprint at Mouth of Florida Bay	289098.8253	639480.207	Red	0.785	7	19.625	
45	West Footprint at Mouth of Florida Bay	289107.9004	639490.6148	Red	490.625	30	1193.985	39
46	West Footprint at Mouth of Florida Bay	289110.8309	639487.7102	Red	803.84	35	572.265	27
47	West Footprint at Mouth of Florida Bay	289102.3331	639478.0484	Red	1.76625	6	7.065	
48	West Footprint at Mouth of Florida Bay	289103.4799	639477.981	Red	1.76625	7	7.065	
49	West Footprint at Mouth of Florida Bay	289104.7616	639478.723	Red	0.19625	5	7.065	
50	West Footprint at Mouth of Florida Bay	289114.2056	639478.7904	Red	0.19625	5	7.065	
51	West Footprint at Mouth of Florida Bay	289112.9239	639479.7348	Red	0.785	7	12.56	
52	West Footprint at Mouth of Florida Bay	289124.594	639479.8023	Red	0.785	8	12.56	
53	West Footprint at Mouth of Florida Bay	289123.7171	639479.465	Red	0.785	9	12.56	
54	West Footprint at Mouth of Florida Bay	289122.5028	639480.8142	Red	0.785	9	7.065	
55	West Footprint at Mouth of Florida Bay	289121.9632	639483.0403	Red	0.785	7	7.065	
56	West Footprint at Mouth of Florida Bay	289122.4354	639484.2545	Red	0.785	6	7.065	
57	West Footprint at Mouth of Florida Bay	289123.6496	639483.3101	Red	0.785	5	7.065	
58	West Footprint at Mouth of Florida Bay	289127.2249	639479.3976	Red	0.785	10	7.065	
59	West Footprint at Mouth of Florida Bay	289128.6905	639481.5412	Red	0.785	9	7.065	
60	West Footprint at Mouth of Florida Bay	289128.3042	639479.8023	Red	0.785	8	19.625	
61	West Footprint at Mouth of Florida Bay	289129.1811	639479.6674	Red	0.785	5	12.56	
62	West Footprint at Mouth of Florida Bay	289132.554	639480.9491	Red	3.14	5	7.065	
63	West Footprint at Mouth of Florida Bay	289132.1492	639479.5999	Red	3.14	6	7.065	
64	West Footprint at Mouth of Florida Bay	289133.8357	639479.465	Red	9.61625	8	7.065	
65	West Footprint at Mouth of Florida Bay	289134.5102	639480.2745	Red	0.785	7	7.065	
66	West Footprint at Mouth of Florida Bay	289134.1055	639481.4887	Red	0.785	6	7.065	
67	West Footprint at Mouth of Florida Bay	289141.1885	639479.5999	Red	0.785	7	7.065	
68	West Footprint at Mouth of Florida Bay	289141.5933	639480.8816	Red	0.785	8	7.065	
69	West Footprint at Mouth of Florida Bay	289139.6248	639490.2355	Red	346.185	29	226.865	17
70	West Footprint at Mouth of Florida Bay	289131.8343	639484.6967	Red	19.625	23	132.665	
71	West Footprint at Mouth of Florida Bay	289140.6303	639489.6803	Red	12.56	16	19.625	
72	West Footprint at Mouth of Florida Bay	289146.5851	639484.187	Red	19.625	21	153.86	6

TABLE 7 - HOUSE DITCH MANGROVES / FOOTPRINT at COASTAL PRAIRIE TRAIL

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
1	Footprint	291156.0952	639496.5371	Red	38.465	15	254.34	
2	Footprint	291158.4757	639521.1965	Red	379.94	25	254.34	
3	Footprint	291152.6075	639518.8818	Red	3.14	5	615.44	
4	Footprint	291153.7363	639534.6791	Red	28.26	12	314	
5	Footprint	291151.6716	639534.1933	Red	0.785	5	961.625	

TABLE 8 - HOUSE DITCH MANGROVES / APPROACH

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
1	West Approach	289015.8182	639480.9506	Black	0	36	226.865	595
2	West Approach	289026.5063	639486.1164	Red	38.465	4	38.465	84
3	West Approach	289029.9376	639486.4371	White	0	34	379.94	330
4	West Approach	289032.3489	639486.6568	Black	0	23	63.585	9
5	West Approach	289035.7761	639485.9581	Red	226.865	25	379.94	308
6	West Approach	289036.9264	639486.2155	Red	0.785	13	38.465	
7	West Approach	289037.1037	639485.0426	Red	50.24	23	314	
8	West Approach	289039.3298	639488.483	Red	63.585	23	226.865	
9	West Approach	289042.1049	639490.9077	Red	7.065	19	12.56	
10	West Approach	289045.2284	639487.965	Red	132.665	24	38.465	
11	West Approach	289042.1488	639488.7735	Red	3.14	9	50.24	
12	West Approach	289045.4607	639490.3499	Red	200.96	25	113.04	12
51	East Approach	289012.4102	639537.9909	Black	0	29	415.265	23
55	East Approach	289046.4203	639530.116	Black	0	26	415.265	483
5	East Approach	289044.318	639536.9727	Red	615.44	27	961.625	450
50	East Approach	288996.2751	639539.503	Red	28.26	9	490.625	800
52	East Approach	289022.7243	639540.6414	Red	706.5	25	961.625	140
53	East Approach	289034.6822	639531.4057	Red	38.465	27	200.96	10
54	East Approach	289036.9172	639532.558	Red	63.585	24	132.665	208

RAULERSON CANAL

TABLE 9 - RAULERSON CANAL MANGROVES / FOOTPRINT

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
237	South Footprint	310330.1517	611382.7424	Red	3.14	3	3.14	2
238	South Footprint	310330.6885	611382.1937	Red	0.785	3	3.14	2
276	South Footprint	310365.5825	611402.3365	Red	12.56	5	12.56	
278	South Footprint	310364.8307	611404.5558	Red	28.26	9	19.625	
279	South Footprint	310362.6624	611405.5516	Red	19.625	9	12.56	
280	South Footprint	310358.669	611404.4068	Red	19.625	10	63.585	
283	South Footprint	310360.8831	611407.8745	Red	7.065	5	12.56	
284	South Footprint	310357.1914	611402.4826	Red	0.785	5	7.065	
285	South Footprint	310358.8335	611404.1289	Red	12.56	10	12.56	
302	South Footprint	310409.4226	611442.2829	Red	19.625	7	28.26	30
303	South Footprint	310407.078	611445.8368	Red	38.465	8	12.56	
304	South Footprint	310408.8524	611449.028	Red	28.26	8	38.465	
305	South Footprint	310409.6798	611453.3408	Red	7.065	6	19.625	
313	South Footprint	310420.2541	611463.2859	Red	19.625	6	19.625	
322	South Footprint	310425.0246	611471.0294	Red	7.065	6	12.56	
327	South Footprint	310428.2992	611475.3291	Red	3.14	5	7.065	
331	South Footprint	310437.0251	611486.7499	Red	7.065	6	7.065	3
333	South Footprint	310439.734	611495.1311	Red	12.56	7	7.065	3
334	South Footprint	310435.3075	611496.4071	Red	12.56	6	19.625	
338	South Footprint	310439.1596	611508.1394	Red	12.56	5	12.56	
339	South Footprint	310438.4409	611510.8092	Red	3.14	4	3.14	
340	South Footprint	310439.1134	611512.8411	Red	7.065	4	7.065	
342	South Footprint	310430.588	611512.3993	Red	3.14	7	12.56	
22	North Footprint	310480.9677	611501.0695	Red	12.56	7	19.625	
23	North Footprint	310477.32	611505.2821	Red	4.90625	6	7.065	
24	North Footprint	310474.7112	611508.2143	Red	19.625	6	19.625	12
25	North Footprint	310474.5164	611496.6439	Red	132.665	14	63.585	25
26	North Footprint	310474.4288	611492.1589	Red	28.26	8	12.56	
29	North Footprint	310469.1171	611478.3549	Red	50.24	12	63.585	9
30	North Footprint	310474.6773	611475.4532	Red	3.14	6	19.625	
38	North Footprint	310436.3288	611426.4252	Red	50.24	12	38.465	6
40	North Footprint	310430.6176	611417.132	Red	3.14	4	7.065	
41	North Footprint	310427.3386	611416.9209	Red	3.14	4	7.065	3
42	North Footprint	310425.6299	611413.7882	Red	63.585	11	28.26	6
44	North Footprint	310429.359	611414.7545	Red	7.065	7	3.14	
45	North Footprint	310427.8333	611412.7618	Red	38.465	10	12.56	
46	North Footprint	310423.0656	611412.2048	Red	12.56	7	28.26	
47	North Footprint	310423.5493	611414.7501	Red	19.625	8	7.065	3
48	North Footprint	310420.0651	611411.9549	Red	12.56	5	19.625	5
52	North Footprint	310415.438	611387.6702	Red	28.26	9	28.26	
53	North Footprint	310420.3956	611390.8763	Red	19.625	14	38.465	
54	North Footprint	310418.2573	611389.6879	Red	3.14	9	12.56	
55	North Footprint	310420.5608	611388.3031	Red	7.065	11	19.625	
56	North Footprint	310421.2796	611387.8312	Red	19.625	11	12.56	
57	North Footprint	310420.8708	611389.4671	Red	7.065	10	12.56	
58	North Footprint	310421.6021	611386.5215	Red	3.14	7	3.14	
59	North Footprint	310420.8377	611382.8661	Red	19.625	16	28.26	
60	North Footprint	310412.3293	611375.8363	Red	12.56	12	19.625	
61	North Footprint	310411.3312	611375.8771	Red	7.065	8	7.065	
62	North Footprint	310408.2913	611382.4956	Red	28.26	7	12.56	
63	North Footprint	310408.3944	611388.5166	Red	3.14	5	7.065	
65	North Footprint	310400.1132	611378.8551	Red	314	14	706.5	
67	North Footprint	310397.5541	611358.0865	Red	12.56	8	19.625	
68	North Footprint	310400.5784	611359.4876	Red	19.625	9	19.625	
69	North Footprint	310390.3399	611360.9207	Red	19.625	10	19.625	
70	North Footprint	310384.1508	611361.2061	Red	28.26	7	38.465	
71	North Footprint	310382.6384	611358.8497	Red	12.56	6	12.56	
72	North Footprint	310385.8573	611365.3103	Red	28.26	8	12.56	

TABLE 9 - RAULERSON CANAL MANGROVES / FOOTPRINT

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
73	North Footprint	310382.396	611364.8264	Red	12.56	5	28.26	6
74	North Footprint	310376.8866	611368.1338	Red	19.625	9	12.56	
75	North Footprint	310381.7815	611363.9182	Red	7.065	6	7.065	
76	North Footprint	310382.1019	611350.6288	Red	28.26	11	38.465	
77	North Footprint	310387.1507	611349.8	Red	19.625	10	12.56	
78	North Footprint	310382.3682	611350.1002	Red	28.26	14	28.26	
79	North Footprint	310376.7511	611348.2816	Red	7.065	12	12.56	
80	North Footprint	310372.7153	611347.9021	Red	3.14	11	7.065	
81	North Footprint	310374.5627	611349.3293	Red	19.625	10	12.56	
82	North Footprint	310373.0151	611349.7777	Red	3.14	9	7.065	
83	North Footprint	310375.1209	611354.7286	Red	3.14	8	0.785	
84	North Footprint	310376.1705	611351.4931	Red	38.465	7	7.065	
85	North Footprint	310371.6594	611351.2502	Red	113.04	9	7.065	
86	North Footprint	310370.8878	611346.0962	Red	78.5	19	63.585	
87	North Footprint	310371.9943	611349.4609	Red	12.56	6	12.56	
88	North Footprint	310374.7848	611358.7727	Red	19.625	9	19.625	
89	North Footprint	310371.535	611355.0387	Red	7.065	7	7.065	
90	North Footprint	310370.5409	611356.2436	Red	7.065	7	7.065	
91	North Footprint	310376.0477	611356.6841	Red	7.065	8	12.56	
92	North Footprint	310368.2573	611360.683	Red	38.465	18	28.26	72
93	North Footprint	310368.593	611364.4962	Red	7.065	4	7.065	3
94	North Footprint	310368.7592	611358.1633	Red	7.065	4	7.065	3
96	North Footprint	310372.287	611340.609	Red	28.26	18	50.24	

TABLE 10 - RAULERSON CANAL MANGROVES / APPROACH

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
1	Little Sable Creek Approach East Side	310097.8584	611060.1236	White	0	15	3.14	4
2	Little Sable Creek Approach East Side	310097.418	611058.5823	White	0	15	3.14	6
3	Little Sable Creek Approach East Side	310097.1978	611057.151	White	0	15	3.14	25
4	Little Sable Creek Approach East Side	310096.6473	611055.4996	White	0	15	3.14	20
5	Little Sable Creek Approach East Side	310096.317	611053.8481	White	0	15	3.14	25
6	Little Sable Creek Approach East Side	310096.0968	611052.6371	White	0	15	3.14	35
7	Little Sable Creek Approach East Side	310095.7665	611051.3159	White	0	15	3.14	30
8	Little Sable Creek Approach East Side	310095.4241	611050.3007	White	0	15	3.14	15
9	Little Sable Creek Approach East Side	310095.0799	611048.9238	White	0	15	3.14	25
10	Little Sable Creek Approach East Side	310094.5741	611047.5031	White	0	15	3.14	4
11	Little Sable Creek Approach East Side	310092.3492	611046.8844	White	0	5	38.465	25
12	Little Sable Creek Approach East Side	310090.7318	611046.6459	White	0	6	78.5	25
13	Little Sable Creek Approach East Side	310089.7252	611046.8967	White	0	15	113.04	10
14	Little Sable Creek Approach East Side	310088.5035	611047.2306	White	0	20	78.5	15
15	Little Sable Creek Approach East Side	310087.6216	611047.5086	White	0	5	12.56	30
16	Little Sable Creek Approach East Side	310086.7943	611047.4038	White	0	10	50.24	5
17	Little Sable Creek Approach East Side	310085.8195	611047.5677	White	0	7	28.26	35
18	Little Sable Creek Approach East Side	310084.824	611048.1532	White	0	5	12.56	17
19	Little Sable Creek Approach East Side	310083.7968	611048.0824	Red	7.065	8	3.14	4
20	Little Sable Creek Approach East Side	310082.6111	611047.9676	White	0	4	0.785	17
21	Little Sable Creek Approach East Side	310081.6549	611048.0441	White	0	10	19.625	25
22	Little Sable Creek Approach East Side	310079.2294	611048.6517	White	0	5	38.465	10
23	Little Sable Creek Approach East Side	310075.4002	611051.2722	White	0	4	78.5	15
24	Little Sable Creek Approach East Side	310071.5495	611054.1738	Black	0	20	113.04	
25	Little Sable Creek Approach East Side	310064.5035	611061.4	White	0	3	78.5	12
26	Little Sable Creek Approach East Side	310057.418	611068.1032	Red	4.90625	7.5	19.625	7
27	Little Sable Creek Approach East Side	310043.3135	611075.2117	White	0	10	50.24	4
28	Little Sable Creek Approach East Side	310019.8529	611090.4003	White	0	11	314	6
29	Little Sable Creek Approach East Side	310016.8812	611093.1762	Black	0	10	113.04	
30	Little Sable Creek Approach East Side	310014.6471	611095.5837	White	0	18	706.5	10
31	Little Sable Creek Approach East Side	310011.5193	611096.0288	Red	4.90625	12	12.56	6
32	Little Sable Creek Approach East Side	310008.3659	611098.414	Red	23.74625	20	19.625	216
33	Little Sable Creek Approach East Side	310005.7092	611100.4932	White	0	8	7.065	12
34	Little Sable Creek Approach East Side	310002.5001	611102.2937	White	0	10	113.04	20
35	Little Sable Creek Approach East Side	309999.4716	611105.3447	White	0	10	38.465	19
36	Little Sable Creek Approach East Side	309996.3544	611107.2959	White	0	11	176.625	11
37	Little Sable Creek Approach East Side	309991.9634	611109.041	Black	0	4	78.5	
38	Little Sable Creek Approach East Side	309985.1308	611109.4651	Black	0	15	28.26	
39	Little Sable Creek Approach East Side	309980.7651	611111.1251	Black	0	20	63.585	
40	Little Sable Creek Approach East Side	309976.9036	611111.2263	Black	0	5	7.065	
41	Little Sable Creek Approach East Side	309972.844	611112.8944	Black	0	5	12.56	
42	Little Sable Creek Approach East Side	309964.1106	611115.2299	Black	0	22	f	
43	Little Sable Creek Approach East Side	309961.1779	611115.7307	White	0	13	19.625	32 lf
44	Little Sable Creek Approach East Side	309957.1896	611114.3586	Red	0.785	1	12.56	12
45	Little Sable Creek Approach East Side	309955.4491	611115.1926	Red	7.065	8	28.26	7
46	Little Sable Creek Approach East Side	309952.2142	611116.7997	Red	0.19625	3.5	38.465	6
47	Little Sable Creek Approach East Side	309950.121	611118.1812	Red	9.61625	10	7.065	8
48	Little Sable Creek Approach East Side	309948.0693	611118.0509	Red	12.56	12	3.14	6
49	Little Sable Creek Approach East Side	309945.6607	611116.4628	White	0	9	19.625	12
50	Little Sable Creek Approach East Side	309941.4683	611117.7485	White	0	3	12.56	30
51	Little Sable Creek Approach East Side	309940.2145	611118.2819	Red	7.065	4	19.625	19
52	Little Sable Creek Approach East Side	309939.1261	611118.8497	Red	4.90625	3	28.26	4
53	Little Sable Creek Approach East Side	309936.9802	611118.975	Red	0.785	5	7.065	3
54	Little Sable Creek Approach East Side	309934.6568	611119.763	Red	0.785	3	3.14	7
55	Little Sable Creek Approach East Side	309931.2401	611119.0098	Red	0.785	3.5	7.065	140
56	Little Sable Creek Approach East Side	309926.1164	611120.5878	White	0	17	176.625	13
57	Little Sable Creek Approach East Side	309921.7259	611120.6041	Red	1.76625	10	12.56	6
58	Little Sable Creek Approach East Side	309908.3092	611120.1515	White	0	3	28.26	7
59	Little Sable Creek Approach East Side	309906.6009	611119.437	Red	0.19625	4	7.065	5
60	Little Sable Creek Approach East Side	309903.5666	611116.9479	Red	0.19625	4	12.56	35
61	Little Sable Creek Approach East Side	309898.5997	611118.0959	Red	0.19625	3	28.26	6
62	Little Sable Creek Approach East Side	309896.8258	611115.8421	Black	0	15	3.14	
63	Little Sable Creek Approach East Side	309894.4476	611114.7148	Red	4.90625	2.5	7.065	2

TABLE 10 - RAULERSON CANAL MANGROVES / APPROACH

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
64	Little Sable Creek Approach East Side	309892.7396	611114.008	Red	9.61625	7	12.56	3
65	Little Sable Creek Approach East Side	309891.1759	611112.517	Red	1.76625	4	19.625	3
66	Little Sable Creek Approach East Side	309887.0642	611112.1211	Red	0.785	2	7.065	4
67	Little Sable Creek Approach East Side	309877.8812	611108.6956	Red	0.19625	2	9.61625	3
68	Little Sable Creek Approach East Side	309877.8416	611104.8596	Red	7.065	6	12.56	4
69	Little Sable Creek Approach East Side	309874.7533	611102.1052	Red	0.19625	5	7.065	6
70	Little Sable Creek Approach East Side	309871.7451	611099.3905	Red	0.19625	5	7.065	2
71	Little Sable Creek Approach East Side	309868.8763	611095.0997	Black	0	20	176.625	
72	Little Sable Creek Approach East Side	309863.7644	611091.5194	White	0	20	78.5	5
73	Little Sable Creek Approach East Side	309860.0391	611087.9264	Red	7.065	15	19.625	3
74	Little Sable Creek Approach East Side	309858.9736	611085.5714	Red	7.065	5	7.065	6
75	Little Sable Creek Approach East Side	309855.9423	611084.4226	Black	0	20	78.5	
76	Little Sable Creek Approach East Side	309854.1296	611081.6861	Red	7.065	5	7.065	3
77	Little Sable Creek Approach East Side	309856.3763	611080.4295	Black	0	8	19.625	
78	Little Sable Creek Approach East Side	309853.4249	611078.1726	Black	0	7	12.56	
79	Little Sable Creek Approach East Side	309855.6829	611074.6839	White	0	12	7.065	10
80	Little Sable Creek Approach East Side	309847.543	611067.4084	Red	3.14	4	12.56	6
81	Little Sable Creek Approach East Side	309846.0881	611066.591	White	0	6	38.465	20
82	Little Sable Creek Approach East Side	309844.5794	611065.1848	Red	4.90625	6	7.065	2
83	Little Sable Creek Approach East Side	309843.9786	611062.8464	White	0	7	38.465	10
84	Little Sable Creek Approach East Side	309844.3766	611059.5986	Red	12.56	6	19.625	4
85	Little Sable Creek Approach East Side	309843.3072	611056.712	White	0	12	38.465	25
86	Little Sable Creek Approach East Side	309840.1136	611054.2397	White	0	10	19.625	25
87	Little Sable Creek Approach East Side	309839.2581	611052.6718	White	0	8	7.065	8
88	Little Sable Creek Approach East Side	309838.7211	611049.6453	White	0	10	28.26	13
89	Little Sable Creek Approach East Side	309836.05	611048.3157	Red	9.61625	10	19.625	4
90	Little Sable Creek Approach East Side	309835.6445	611043.514	Red	9.61625	10	12.56	42
91	Little Sable Creek Approach East Side	309835.706	611042.8529	Red	7.065	8	4.90625	6
92	Little Sable Creek Approach East Side	309835.7071	611042.2104	Red	0.19625	3.5	3.14	35
93	Little Sable Creek Approach East Side	309834.7532	611041.1207	White	0	15	50.24	13
94	Little Sable Creek Approach East Side	309833.6733	611039.7933	White	0	9	38.465	10
95	Little Sable Creek Approach East Side	309833.367	611037.8864	White	0	4	12.56	6
96	Little Sable Creek Approach East Side	309832.1257	611035.1498	White	0	9	28.26	5
97	Little Sable Creek Approach East Side	309830.6466	611032.822	Red	0.19625	5	4.90625	5
98	Little Sable Creek Approach East Side	309832.3048	611028.66	White	0	10	7.065	17
99	Little Sable Creek Approach East Side	309828.2322	611027.8199	White	0	13	28.26	13
100	Little Sable Creek Approach East Side	309824.5882	611026.6818	White	0	20	38.465	13
101	Little Sable Creek Approach East Side	309823.3176	611023.101	White	0	17	63.585	12
102	Little Sable Creek Approach East Side	309814.9351	611003.9969	Black	0	8	9.61625	
103	Little Sable Creek Approach East Side	309820.1928	611016.5801	Red	3.14	6	12.56	7
104	Little Sable Creek Approach East Side	309818.3506	611015.1307	White	0	15	176.625	12
105	Little Sable Creek Approach East Side	309815.5738	611009.2437	White	0	25	176.625	25
106	Little Sable Creek Approach East Side	309822.7333	611019.6223	Black	0	25	113.04	
107	Little Sable Creek Approach East Side	309808.5322	611001.5005	White	0	10	226.865	25
108	Little Sable Creek Approach East Side	309805.1611	610992.4955	Black	0	20	132.665	
109	Little Sable Creek Approach East Side	309803.9426	610981.9566	Black	0	3.5	78.5	10
110	Little Sable Creek Approach East Side	309797.8228	610978.2265	White	0	12	113.04	8
111	Little Sable Creek Approach East Side	309797.0721	610975.6084	White	0	5	3.14	7
112	Little Sable Creek Approach East Side	309793.5203	610968.487	White	0	9	113.04	12
113	Little Sable Creek Approach East Side	309790.6102	610965.7972	White	0	22	706.5	8
114	Little Sable Creek Approach East Side	309780.7386	610950.9664	White	0	25	314	10
115	Little Sable Creek Approach East Side	309781.5699	610948.0195	White	0	15	28.26	13
116	Little Sable Creek Approach East Side	309780.0345	610945.0691	White	0	25	314	15
117	Little Sable Creek Approach East Side	309773.7613	610940.0812	White	0	25	78.5	15
118	Little Sable Creek Approach East Side	309765.0815	610937.7931	White	0	35	490.625	8
119	Little Sable Creek Approach East Side	309761.2117	610930.1693	Black	0	30	314	
120	Little Sable Creek Approach East Side	309753.4201	610920.8778	White	0	35	379.94	8
121	Little Sable Creek Approach East Side	309744.639	610894.4762	White	0	30	490.625	8
122	Little Sable Creek Approach East Side	309745.1252	610884.4144	White	0	15	78.5	13
123	Little Sable Creek Approach East Side	309735.0159	610882.544	White	0	20	113.04	8
124	Little Sable Creek Approach East Side	309730.0893	610874.7632	White	0	25	314	10
125	Little Sable Creek Approach East Side	309726.8367	610864.1005	Black	0	7	38.465	
126	Little Sable Creek Approach East Side	309731.0527	610845.1588	White	0	10	12.56	13

TABLE 10 - RAULERSON CANAL MANGROVES / APPROACH

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
127	Little Sable Creek Approach East Side	309729.1118	610837.787	White	0	20	113.04	10
128	Little Sable Creek Approach East Side	309734.0086	610834.9143	White	0	13	50.24	8
129	Little Sable Creek Approach East Side	309735.0779	610825.2363	White	0	17	94.985	13
130	Little Sable Creek Approach East Side	309728.9726	610823.9069	White	0	11	113.04	7
131	Little Sable Creek Approach East Side	309728.2522	610820.495	Black	0	22	176.625	
132	Little Sable Creek Approach East Side	309728.0212	610817.9538	White	0	8	153.86	6
133	Little Sable Creek Approach East Side	309727.3115	610813.3637	Black	0	25	50.24	
134	Little Sable Creek Approach East Side	309725.9218	610808.6585	Red	50.24	35	314	5
135	Little Sable Creek Approach East Side	309724.7869	610800.5116	Black	0	12	0.785	
136	Little Sable Creek Approach East Side	309723.4225	610789.1963	Black	0	10	7.065	
137	Little Sable Creek Approach East Side	309723.7396	610785.225	Red	9.61625	15	12.56	91
138	Little Sable Creek Approach East Side	309719.773	610782.5037	Red	12.56	12	19.625	9
139	Little Sable Creek Approach East Side	309723.023	610775.6883	Red	19.625	20	78.5	72
140	Little Sable Creek Approach East Side	309719.3299	610768.929	White	0	15	38.465	5
141	Little Sable Creek Approach East Side	309714.2782	610767.1862	White	0	20	314	7
142	Little Sable Creek Approach East Side	309710.7679	610763.5736	White	0	22	176.625	8
143	Little Sable Creek Approach East Side	309705.1162	610725.9479	White	0	7	28.26	6
144	Little Sable Creek Approach East Side	309710.2985	610723.8767	White	0	13	19.625	4
145	Little Sable Creek Approach East Side	309708.3381	610719.62	White	0	15	63.585	10
146	Little Sable Creek Approach East Side	309704.9208	610710.0337	White	0	8	9.61625	7
147	Little Sable Creek Approach East Side	309704.5725	610706.3703	White	0	13	9.61625	10
148	Little Sable Creek Approach East Side	309704.6483	610704.1165	White	0	13	7.065	8
149	Little Sable Creek Approach East Side	309702.1444	610697.7467	White	0	20	50.24	8
150	Little Sable Creek Approach East Side	309700.278	610694.1874	White	0	23	50.24	13
151	Little Sable Creek Approach East Side	309700.2387	610692.1463	White	0	20	19.625	15
152	Little Sable Creek Approach East Side	309699.49	610690.7764	White	0	20	12.56	8
153	Little Sable Creek Approach East Side	309699.3745	610688.6972	White	0	17	9.61625	18
154	Little Sable Creek Approach East Side	309699.3144	610685.9937	White	0	6	7.065	18
155	Little Sable Creek Approach East Side	309700.5825	610681.8634	White	0	18	19.625	20
156	Little Sable Creek Approach East Side	309697.5647	610681.5971	White	0	16	12.56	22
157	Little Sable Creek Approach East Side	309697.0917	610679.5263	Black	0	16	9.61625	
158	Little Sable Creek Approach East Side	309696.517	610677.1026	White	0	12	7.065	8
159	Little Sable Creek Approach East Side	309695.8796	610674.2577	Red	0.19625	20	132.665	4
160	Little Sable Creek Approach East Side	309694.2482	610673.7044	White	0	10	7.065	5
161	Little Sable Creek Approach East Side	309692.8294	610671.6511	White	0	9	38.465	22
162	Little Sable Creek Approach East Side	309693.2493	610670.0393	White	0	11	19.625	27
163	Little Sable Creek Approach East Side	309692.2619	610668.611	White	0	10	38.465	40
164	Little Sable Creek Approach East Side	309690.0259	610665.4856	White	0	18	78.5	18
165	Little Sable Creek Approach East Side	309688.9785	610663.4003	White	0	11	19.625	10
166	Little Sable Creek Approach East Side	309688.4151	610660.7158	White	0	14	19.625	5
167	Little Sable Creek Approach East Side	309686.9154	610658.6704	White	0	13	78.5	3
168	Little Sable Creek Approach East Side	309682.6254	610654.968	White	0	13	7.065	3
169	Little Sable Creek Approach East Side	309678.0405	610650.1427	White	0	14	7.065	3
170	Little Sable Creek Approach East Side	309675.8103	610649.4235	White	0	12	9.61625	2
171	Little Sable Creek Approach East Side	309672.5568	610647.7459	White	0	20	44.15625	25
172	Little Sable Creek Approach East Side	309669.6123	610646.7878	Black	0	20	28.26	
173	Little Sable Creek Approach East Side	309666.7594	610645.7652	White	0	8	12.56	2
174	Little Sable Creek Approach East Side	309662.7575	610645.2651	White	0	8	50.24	20
175	Little Sable Creek Approach East Side	309660.3485	610643.3083	White	0	9	4.90625	4
176	Little Sable Creek Approach East Side	309657.9922	610642.49	White	0	15	28.26	15
177	Little Sable Creek Approach East Side	309655.7114	610641.9153	White	0	12	28.26	6
178	Little Sable Creek Approach East Side	309654.5072	610641.6178	White	0	12	9.61625	1
179	Little Sable Creek Approach East Side	309653.0546	610641.5688	White	0	18	12.56	2
180	Little Sable Creek Approach East Side	309651.4375	610640.8757	Red	4.90625	8	7.065	21
181	Little Sable Creek Approach East Side	309649.4504	610640.2401	White	0	6	12.56	18
182	Little Sable Creek Approach East Side	309647.4952	610637.5465	White	0	10	19.625	8
183	Little Sable Creek Approach East Side	309644.6635	610638.8604	White	0	13	7.065	4
184	Little Sable Creek Approach East Side	309640.2892	610639.4274	Black	0	20	113.04	
185	Little Sable Creek Approach East Side	309637.8275	610640.2351	White	0	22	28.26	18
186	Little Sable Creek Approach East Side	309631.1076	610641.5688	White	0	15	113.04	15
187	Little Sable Creek Approach East Side	309624.6003	610641.7167	White	0	6	28.26	22
1	Little Sable Creek Approach West Side	310182.1803	610942.1999	White	0	10	63.585	2
2	Little Sable Creek Approach West Side	310177.3099	610946.5463	White	0	3	28.26	4

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Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
3	Little Sable Creek Approach West Side	310179.1145	610944.3306	White	0	12	78.5	6
4	Little Sable Creek Approach West Side	310174.5269	610945.0391	White	0	8	12.56	4
5	Little Sable Creek Approach West Side	310163.9627	610947.8757	White	0	13	113.04	3
6	Little Sable Creek Approach West Side	310158.1893	610947.5575	White	0	15	153.86	3
7	Little Sable Creek Approach West Side	310148.0745	610950.3491	Black/Wht	0	12	28.26	
8	Little Sable Creek Approach West Side	310141.0337	610953.1786	White	0	6	12.56	6
9	Little Sable Creek Approach West Side	310139.6003	610953.4775	White	0	9	38.465	3
10	Little Sable Creek Approach West Side	310137.9973	610954.414	White	0	16	19.625	4
11	Little Sable Creek Approach West Side	310136.9486	610955.0292	Black	0	13	113.04	
12	Little Sable Creek Approach West Side	310129.6964	610961.2058	Red	200.96	20	226.865	3
13	Little Sable Creek Approach West Side	310127.4312	610960.9743	White	0	11	530.66	4
14	Little Sable Creek Approach West Side	310126.1697	610962.24	White	0	12	12.56	4
15	Little Sable Creek Approach West Side	310125.1358	610963.456	White	0	2	12.56	8
16	Little Sable Creek Approach West Side	310122.886	610964.2371	White	0	9	113.04	4
17	Little Sable Creek Approach West Side	310120.1265	610964.6337	White	0	10	38.465	2
18	Little Sable Creek Approach West Side	310116.149	610966.5787	White	0	8	3.14	4
19	Little Sable Creek Approach West Side	310111.831	610968.8976	White	0	9	113.04	2
20	Little Sable Creek Approach West Side	310107.5539	610969.3566	White	0	1	12.56	1
21	Little Sable Creek Approach West Side	310104.831	610969.778	White	0	7	28.26	5
22	Little Sable Creek Approach West Side	310101.6489	610970.0345	White	0	7	7.065	4
23	Little Sable Creek Approach West Side	310099.9961	610970.6611	White	0	7	19.625	14
24	Little Sable Creek Approach West Side	310087.5536	610975.7316	White	0	8	63.585	2
25	Little Sable Creek Approach West Side	310085.7142	610977.0073	White	0	15	78.5	3
26	Little Sable Creek Approach West Side	310084.0403	610976.7823	Red	7.065	9	19.625	6
27	Little Sable Creek Approach West Side	310081.9397	610976.8868	Red	50.24	9	38.465	4
28	Little Sable Creek Approach West Side	310079.6002	610978.7555	White	0	10	3.14	4
29	Little Sable Creek Approach West Side	310077.6522	610978.9705	White	0	11	7.065	1
30	Little Sable Creek Approach West Side	310076.4577	610979.2004	Red	19.625	8	19.625	3
31	Little Sable Creek Approach West Side	310075.6783	610979.2627	Red	0.785	6	3.14	3
32	Little Sable Creek Approach West Side	310074.7647	610979.0523	Red	78.5	10	19.625	2
33	Little Sable Creek Approach West Side	310073.2447	610979.9982	White	0	5	7.065	7
34	Little Sable Creek Approach West Side	310068.7908	610981.5713	Red	3.14	4	12.56	3
35	Little Sable Creek Approach West Side	310064.673	610982.4911	Black	0	12	28.26	
36	Little Sable Creek Approach West Side	310044.5316	610990.7188	Black	0	4	7.065	
37	Little Sable Creek Approach West Side	310037.2617	610997.0314	Black	0	4	28.26	
38	Little Sable Creek Approach West Side	310033.6227	610997.2716	White	0	2	63.585	3
39	Little Sable Creek Approach West Side	310023.468	611003.009	White	0	13	28.26	3
40	Little Sable Creek Approach West Side	310021.412	611004.2906	White	0	3	7.065	8
41	Little Sable Creek Approach West Side	310018.9512	611006.1882	Red	63.585	10	38.465	2
42	Little Sable Creek Approach West Side	310018.0971	611008.4184	White	0	10	19.625	2
43	Little Sable Creek Approach West Side	310017.8928	611011.1506	White	0	12	3.14	3
44	Little Sable Creek Approach West Side	310015.168	611012.3127	White	0	5	3.14	3
45	Little Sable Creek Approach West Side	310012.5859	611013.1812	White	0	5	12.56	20
46	Little Sable Creek Approach West Side	310010.6237	611014.3967	White	0	5	3.14	4
47	Little Sable Creek Approach West Side	310009.8362	611013.6424	White	0	5	7.065	2
48	Little Sable Creek Approach West Side	309999.803	611017.9525	White	0	4	28.26	2
49	Little Sable Creek Approach West Side	309998.2598	611018.453	Red	254.34	13	176.625	6
50	Little Sable Creek Approach West Side	309996.9662	611019.0336	Black	0	8	3.14	
51	Little Sable Creek Approach West Side	309995.444	611020.2796	White	0	7	3.14	3
52	Little Sable Creek Approach West Side	309993.7902	611021.4035	White	0	7	0.785	2
53	Little Sable Creek Approach West Side	309991.4578	611022.6936	White	0	7	3.14	2
54	Little Sable Creek Approach West Side	309989.267	611025.2776	Black	0	5	3.14	
55	Little Sable Creek Approach West Side	309987.4545	611027.7055	White	0	7	3.14	2
56	Little Sable Creek Approach West Side	309987.0617	611029.042	White	0	6	3.14	3
57	Little Sable Creek Approach West Side	309986.8759	611029.5742	White	0	6	7.065	15
58	Little Sable Creek Approach West Side	309984.3291	611030.69	White	0	8	7.065	1
59	Little Sable Creek Approach West Side	309981.328	611033.1927	White	0	3	63.585	1
60	Little Sable Creek Approach West Side	309979.1856	611033.8873	White	0	9	38.465	3
61	Little Sable Creek Approach West Side	309977.0613	611035.0479	White	0	9	19.625	3
62	Little Sable Creek Approach West Side	309975.58	611035.9105	White	0	9	28.26	1
63	Little Sable Creek Approach West Side	309973.6882	611036.3023	White	0	3	7.065	4
64	Little Sable Creek Approach West Side	309967.2212	611039.1611	Red	200.96	22	706.5	4
65	Little Sable Creek Approach West Side	309958.0943	611046.4616	White	0	4	38.465	3

TABLE 10 - RAULERSON CANAL MANGROVES / APPROACH

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
66	Little Sable Creek Approach West Side	309949.0822	611054.7787	Red	3.14	5	7.065	2
67	Little Sable Creek Approach West Side	309946.5534	611054.6954	White	0	5	12.56	3
68	Little Sable Creek Approach West Side	309945.1366	611056.4401	White	0	8	38.465	3
69	Little Sable Creek Approach West Side	309943.6981	611056.4716	White	0	8	28.26	4
70	Little Sable Creek Approach West Side	309936.6021	611055.7986	White	0	6	254.34	5
71	Little Sable Creek Approach West Side	309932.0007	611060.8954	White	0	8	12.56	2
72	Little Sable Creek Approach West Side	309923.9287	611061.6692	Red	28.26	13	38.465	3
73	Little Sable Creek Approach West Side	309920.333	611058.9553	White	0	9	28.26	6
74	Little Sable Creek Approach West Side	309918.6478	611057.3126	White	0	14	50.24	2
75	Little Sable Creek Approach West Side	309918.186	611054.9543	White	0	8	28.26	2
76	Little Sable Creek Approach West Side	309916.8983	611051.1884	Red	706.5	20	283.385	2
78	Little Sable Creek Approach West Side	309903.0933	611052.207	Red	7.065	11	7.065	3
79	Little Sable Creek Approach West Side	309906.1209	611051.1182	White	0	14	38.465	4
80	Little Sable Creek Approach West Side	309899.6668	611051.2188	White	0	15	314	8
81	Little Sable Creek Approach West Side	309897.8061	611043.3662	White	0	2	7.065	1
82	Little Sable Creek Approach West Side	309897.9726	611038.0538	White	0	7	19.625	3
83	Little Sable Creek Approach West Side	309889.5815	611025.1766	White	0	4	38.465	2
83	Little Sable Creek Approach West Side	309887.2595	611021.5173	White	0	9	7.065	4
84	Little Sable Creek Approach West Side	309884.8386	611016.0995	White	0	4	3.14	2
85	Little Sable Creek Approach West Side	309883.838	611015.3703	White	0	5	7.065	15
86	Little Sable Creek Approach West Side	309880.3567	611006.7278	Red	78.5	7	7.065	3
87	Little Sable Creek Approach West Side	309877.8852	611002.2344	White	0	7	12.56	3
88	Little Sable Creek Approach West Side	309872.1798	610995.7871	White	0	4	7.065	1
89	Little Sable Creek Approach West Side	309869.0124	610992.9339	White	0	14	12.56	4
90	Little Sable Creek Approach West Side	309867.9786	610991.3549	White	0	11	28.26	3
91	Little Sable Creek Approach West Side	309866.3026	610988.8108	White	0	12	3.14	3
92	Little Sable Creek Approach West Side	309865.9848	610987.6201	White	0	10	7.065	8
93	Little Sable Creek Approach West Side	309864.7901	610987.0202	White	0	3	28.26	7
94	Little Sable Creek Approach West Side	309864.4305	610983.4625	White	0	7	7.065	7
95	Little Sable Creek Approach West Side	309861.6548	610980.376	Black	0	8	28.26	
96	Little Sable Creek Approach West Side	309860.9206	610978.4538	White	0	10	3.14	3
97	Little Sable Creek Approach West Side	309859.0226	610977.0975	White	0	12	12.56	10
98	Little Sable Creek Approach West Side	309856.0342	610975.7148	Black	0	8	12.56	
99	Little Sable Creek Approach West Side	309855.0454	610973.6106	Red	12.56	14	314	6
100	Little Sable Creek Approach West Side	309853.2188	610969.8335	Black	0	11	28.26	
101	Little Sable Creek Approach West Side	309852.4447	610963.4926	Red	28.26	15	38.465	3
102	Little Sable Creek Approach West Side	309850.1107	610962.5058	Red	38.465	11	19.625	2
103	Little Sable Creek Approach West Side	309848.1883	610958.9915	Red	50.24	12	38.465	2
104	Little Sable Creek Approach West Side	309847.6763	610955.8574	White	0	2	19.625	2
105	Little Sable Creek Approach West Side	309847.4087	610951.1891	Red	530.66	27	660.185	2
106	Little Sable Creek Approach West Side	309845.9216	610950.1205	White	0	14	63.585	6
107	Little Sable Creek Approach West Side	309844.6795	610948.6164	Red	283.385	18	379.94	2
108	Little Sable Creek Approach West Side	309843.814	610946.1483	White	0	3	12.56	3
109	Little Sable Creek Approach West Side	309843.1294	610944.3661	White	0	12	63.585	2
110	Little Sable Creek Approach West Side	309839.9014	610938.0516	Black	0	12	12.56	
111	Little Sable Creek Approach West Side	309837.4729	610935.8274	White	0	7	28.26	10
112	Little Sable Creek Approach West Side	309836.1675	610933.9874	Black	0	10	19.625	
113	Little Sable Creek Approach West Side	309833.6106	610933.1867	Black	0	12	38.465	
114	Little Sable Creek Approach West Side	309831.9242	610932.9718	White	0	10	7.065	4
115	Little Sable Creek Approach West Side	309831.1035	610931.5756	White	0	5	38.465	1
116	Little Sable Creek Approach West Side	309831.2663	610930.72	Black	0	18	19.625	
117	Little Sable Creek Approach West Side	309831.1806	610929.6945	White	0	5	28.26	3
118	Little Sable Creek Approach West Side	309830.957	610928.7599	White	0	11	50.24	2
119	Little Sable Creek Approach West Side	309830.2567	610927.3259	White	0	14	28.26	3
120	Little Sable Creek Approach West Side	309829.4726	610926.3571	White	0	4	7.065	5
121	Little Sable Creek Approach West Side	309827.9369	610924.7914	Red	132.665	8	19.625	2
122	Little Sable Creek Approach West Side	309826.819	610923.4453	Red	12.56	7	28.26	4
123	Little Sable Creek Approach West Side	309821.2661	610919.426	White	0	9	19.625	3
124	Little Sable Creek Approach West Side	309816.7872	610917.6383	White	0	3	7.065	4
125	Little Sable Creek Approach West Side	309815.7141	610914.8923	Red	0.785	6	7.065	6
126	Little Sable Creek Approach West Side	309814.6664	610911.1596	Red	0.785	4	12.56	2
127	Little Sable Creek Approach West Side	309814.0493	610907.3871	White	0	14	254.34	2
128	Little Sable Creek Approach West Side	309813.1734	610905.7542	White	0	10	113.04	5

TABLE 10 - RAULERSON CANAL MANGROVES / APPROACH

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
129	Little Sable Creek Approach West Side	309813.2416	610904.1231	White	0	12	63.585	12
130	Little Sable Creek Approach West Side	309812.8326	610903.5042	Red	12.56	7	12.56	4
131	Little Sable Creek Approach West Side	309812.08	610902.5451	Red	28.26	6	7.065	2
133	Little Sable Creek Approach West Side	309810.6488	610899.3715	Red	28.26	9	7.065	5
134	Little Sable Creek Approach West Side	309809.6957	610898.0743	Red	7.065	9	7.065	2
135	Little Sable Creek Approach West Side	309808.2834	610896.2879	Red	12.56	9	7.065	4
136	Little Sable Creek Approach West Side	309807.8375	610894.5358	Red	19.625	9	7.065	3
137	Little Sable Creek Approach West Side	309807.7462	610893.3451	Red	4.90625	9	12.56	3
138	Little Sable Creek Approach West Side	309807.4818	610892.3867	White	0	9	38.465	25
139	Little Sable Creek Approach West Side	309806.0033	610887.949	White	0	4	28.26	25
140	Little Sable Creek Approach West Side	309803.1634	610884.5042	Black	0	10	7.065	
141	Little Sable Creek Approach West Side	309801.7371	610883.0829	Black	0	11	19.625	
142	Little Sable Creek Approach West Side	309800.1787	610881.7775	Red	50.24	10	12.56	2
143	Little Sable Creek Approach West Side	309799.357	610880.3282	White	0	7	3.14	25
144	Little Sable Creek Approach West Side	309798.1629	610878.6447	White	0	7	0.785	25
145	Little Sable Creek Approach West Side	309797.652	610876.8044	White	0	6	0.785	25
146	Little Sable Creek Approach West Side	309797.6238	610874.9214	Red	63.585	9	28.26	2
147	Little Sable Creek Approach West Side	309795.9529	610872.541	White	0	4	19.625	25
148	Little Sable Creek Approach West Side	309794.4684	610871.8621	Red	113.04	12	38.465	3
149	Little Sable Creek Approach West Side	309792.4032	610870.3928	White	0	5	12.56	25
150	Little Sable Creek Approach West Side	309790.9046	610867.209	Red	12.56	6	12.56	1
151	Little Sable Creek Approach West Side	309790.4279	610864.9871	Red	19.625	9	38.465	3
152	Little Sable Creek Approach West Side	309790.0662	610863.945	Red	28.26	11	38.465	4
153	Little Sable Creek Approach West Side	309788.9422	610862.9538	White	0	7	50.24	25
154	Little Sable Creek Approach West Side	309787.9015	610861.4162	Red	0.785	7	0.785	3
155	Little Sable Creek Approach West Side	309787.7324	610859.5113	Black	0	12	12.56	
156	Little Sable Creek Approach West Side	309787.7319	610858.2376	Black	0	14	50.24	
157	Little Sable Creek Approach West Side	309787.2736	610854.9397	Red	63.585	12	28.26	5
158	Little Sable Creek Approach West Side	309786.0089	610849.5039	Black	0	10	12.56	
159	Little Sable Creek Approach West Side	309786.4737	610846.3484	White	0	3	7.065	25
160	Little Sable Creek Approach West Side	309785.1667	610841.9339	White	0	8	63.585	25
161	Little Sable Creek Approach West Side	309784.5167	610838.9988	White	0	6	28.26	15
162	Little Sable Creek Approach West Side	309784.5481	610836.9175	Red	176.625	16	452.16	4
163	Little Sable Creek Approach West Side	309786.7398	610833.1438	White	0	8	0.785	25
164	Little Sable Creek Approach West Side	309786.4959	610827.4061	White	0	7	12.56	25
165	Little Sable Creek Approach West Side	309786.2753	610822.2636	Red	63.585	13	63.585	2
166	Little Sable Creek Approach West Side	309787.2286	610803.4446	Red	153.86	11	113.04	2
167	Little Sable Creek Approach West Side	309787.4137	610796.238	Red	200.96	12	153.86	7
168	Little Sable Creek Approach West Side	309782.8487	610789.2264	Red	50.24	12	12.56	3
169	Little Sable Creek Approach West Side	309776.1076	610760.0283	White	0	15	38.465	15
170	Little Sable Creek Approach West Side	309775.0037	610755.9776	White	0	2	19.625	8
171	Little Sable Creek Approach West Side	309771.9268	610754.261	White	0	3	7.065	25
172	Little Sable Creek Approach West Side	309771.0175	610748.8569	White	0	7	28.26	20
173	Little Sable Creek Approach West Side	309773.0836	610745.4733	White	0	3	38.465	9
174	Little Sable Creek Approach West Side	309774.7546	610740.9912	White	0	4	12.56	7
175	Little Sable Creek Approach West Side	309771.7355	610734.6597	Red	50.24	13	113.04	2
176	Little Sable Creek Approach West Side	309768.4373	610730.4762	White	0	4	7.065	4
177	Little Sable Creek Approach West Side	309764.4356	610724.407	White	0	3	12.56	12
178	Little Sable Creek Approach West Side	309764.3615	610721.0893	White	0	7	28.26	20
179	Little Sable Creek Approach West Side	309764.7313	610709.2157	White	0	4	38.465	15
180	Little Sable Creek Approach West Side	309762.8571	610707.9974	White	0	14	28.26	4
181	Little Sable Creek Approach West Side	309760.6883	610707.6265	White	0	2	7.065	7
182	Little Sable Creek Approach West Side	309755.4577	610702.6719	White	0	3	78.5	3
183	Little Sable Creek Approach West Side	309758.077	610700.8417	Black	0	2	12.56	
184	Little Sable Creek Approach West Side	309758.5782	610698.7426	Black	0	6	19.625	
185	Little Sable Creek Approach West Side	309759.3192	610696.5415	Black	0	13	78.5	
186	Little Sable Creek Approach West Side	309759.3172	610694.2921	Red	28.26	6	3.14	63
187	Little Sable Creek Approach West Side	309758.969	610692.9722	Black	0	7	28.26	
188	Little Sable Creek Approach West Side	309757.8054	610692.032	Red	113.04	15	132.665	6
189	Little Sable Creek Approach West Side	309757.5107	610688.8206	White	0	17	153.86	7
190	Little Sable Creek Approach West Side	309758.1407	610687.5002	Black	0	3	3.14	
191	Little Sable Creek Approach West Side	309758.0634	610685.9129	White	0	1	3.14	13
192	Little Sable Creek Approach West Side	309757.4248	610683.9761	White	0	14	28.26	8

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Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
193	Little Sable Creek Approach West Side	309755.5846	610682.1482	White	0	5	12.56	20
194	Little Sable Creek Approach West Side	309752.5211	610674.2536	White	0	4	50.24	3
195	Little Sable Creek Approach West Side	309747.1267	610673.4175	White	0	1	7.065	4
196	Little Sable Creek Approach West Side	309744.6989	610671.2983	White	0	3	12.56	5
197	Little Sable Creek Approach West Side	309745.8142	610668.9965	White	0	3	38.465	15
198	Little Sable Creek Approach West Side	309745.1272	610666.7927	White	0	6	12.56	12
199	Little Sable Creek Approach West Side	309743.6312	610664.418	White	0	7	12.56	15
200	Little Sable Creek Approach West Side	309741.2912	610663.6835	White	0	5	3.14	8
201	Little Sable Creek Approach West Side	309738.6915	610661.3157	Red	7.065	4	3.14	6
202	Little Sable Creek Approach West Side	309738.0051	610659.8398	White	0	9	28.26	6
203	Little Sable Creek Approach West Side	309738.6353	610658.224	White	0	8	12.56	7
204	Little Sable Creek Approach West Side	309737.6157	610656.8052	White	0	7	7.065	4
205	Little Sable Creek Approach West Side	309736.9948	610655.512	Red	19.625	12	50.24	4
206	Little Sable Creek Approach West Side	309736.0759	610653.9662	White	0	3	3.14	5
207	Little Sable Creek Approach West Side	309733.9734	610653.3708	Red	50.24	9	176.625	30
208	Little Sable Creek Approach West Side	309732.7556	610652.3783	White	0	12	7.065	10
209	Little Sable Creek Approach West Side	309732.6449	610651.0734	White	0	15	19.625	7
210	Little Sable Creek Approach West Side	309731.0833	610650.021	White	0	12	12.56	7
211	Little Sable Creek Approach West Side	309729.9652	610649.4143	Red	3.14	11	28.26	72
212	Little Sable Creek Approach West Side	309728.7072	610649.1204	White	0	13	28.26	4
213	Little Sable Creek Approach West Side	309726.5913	610646.9391	Red	113.04	15	12.56	6
214	Little Sable Creek Approach West Side	309725.9918	610645.7864	Black	0	11	38.465	
215	Little Sable Creek Approach West Side	309725.4698	610644.33	White	0	2	19.625	4
216	Little Sable Creek Approach West Side	309725.1697	610643.0565	White	0	12	7.065	4
217	Little Sable Creek Approach West Side	309724.5917	610641.7999	Black	0	10	7.065	
218	Little Sable Creek Approach West Side	309723.2566	610640.6339	Red	28.26	13	38.465	4
219	Little Sable Creek Approach West Side	309722.9289	610639.1659	Red	3.14	4	3.14	7
220	Little Sable Creek Approach West Side	309721.6365	610638.2036	Red	0.785	7	7.065	5
221	Little Sable Creek Approach West Side	309720.7639	610637.0434	White	0	7	12.56	1
222	Little Sable Creek Approach West Side	309720.2489	610636.7542	Red	19.625	11	19.625	30
223	Little Sable Creek Approach West Side	309720.1061	610634.2553	Red	3.14	4	3.14	108
224	Little Sable Creek Approach West Side	309719.2652	610633.363	White	0	13	7.065	11
225	Little Sable Creek Approach West Side	309717.5744	610632.9014	White	0	14	50.24	20
226	Little Sable Creek Approach West Side	309717.0666	610631.9225	White	0	4	12.56	15
227	Little Sable Creek Approach West Side	309716.6277	610631.0678	Red	7.065	7	28.26	135
228	Little Sable Creek Approach West Side	309715.7481	610630.6791	White	0	6	3.14	10
229	Little Sable Creek Approach West Side	309714.2841	610630.6089	White	0	14	19.625	6
230	Little Sable Creek Approach West Side	309713.6516	610629.6202	White	0	18	19.625	6
231	Little Sable Creek Approach West Side	309713.0482	610628.9506	White	0	15	3.14	4
232	Little Sable Creek Approach West Side	309712.6907	610627.4702	White	0	16	3.14	10
233	Little Sable Creek Approach West Side	309712.0627	610626.0418	White	0	16	3.14	5
234	Little Sable Creek Approach West Side	309711.8496	610624.5215	Red	12.56	6	12.56	4
235	Little Sable Creek Approach West Side	309711.2573	610623.394	Red	3.14	8	12.56	4
236	Little Sable Creek Approach West Side	309711.4073	610619.8986	White	0	14	7.065	10
237	Little Sable Creek Approach West Side	309711.6793	610618.4672	Black	0	13	38.465	
238	Little Sable Creek Approach West Side	309711.8964	610616.3697	White	0	5	7.065	5
239	Little Sable Creek Approach West Side	309711.6549	610614.6111	Red	28.26	12	28.26	63
240	Little Sable Creek Approach West Side	309710.613	610613.1311	Red	3.14	5	7.065	15
241	Little Sable Creek Approach West Side	309710.0397	610612.4549	White	0	12	0.785	4
242	Little Sable Creek Approach West Side	309709.3898	610611.5892	Black	0	13	3.14	
243	Little Sable Creek Approach West Side	309708.9476	610610.9049	White	0	9	0.785	10
244	Little Sable Creek Approach West Side	309707.0343	610611.0723	Red	12.56	5	7.065	2
245	Little Sable Creek Approach West Side	309705.27	610611.5958	White	0	4	3.14	7
246	Little Sable Creek Approach West Side	309703.8691	610611.8314	Red	3.14	7	50.24	12
247	Little Sable Creek Approach West Side	309703.0419	610609.8485	Black	0	8	19.625	
248	Little Sable Creek Approach West Side	309702.1879	610609.6601	Red	3.14	4	7.065	4
249	Little Sable Creek Approach West Side	309701.2183	610609.6086	Red	3.14	3	3.14	6
250	Little Sable Creek Approach West Side	309700.3381	610609.7212	White	0	7	28.26	15
251	Little Sable Creek Approach West Side	309699.7249	610609.0179	Black	0	8	3.14	
252	Little Sable Creek Approach West Side	309699.3457	610608.3034	Red	3.14	6	7.065	3
253	Little Sable Creek Approach West Side	309699.254	610607.6497	White	0	3	3.14	8
254	Little Sable Creek Approach West Side	309698.9071	610607.1437	Red	3.14	6	7.065	5
255	Little Sable Creek Approach West Side	309698.4578	610606.8706	White	0	4	0.785	10

TABLE 10 - RAULERSON CANAL MANGROVES / APPROACH

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
256	Little Sable Creek Approach West Side	309697.7721	610606.8734	Black	0	7	19.625	
257	Little Sable Creek Approach West Side	309697.1812	610606.8523	Red	63.585	14	38.465	9
258	Little Sable Creek Approach West Side	309696.3158	610606.9059	Red	7.065	7	3.14	90
259	Little Sable Creek Approach West Side	309695.0984	610607.5799	Red	3.14	4	3.14	5
260	Little Sable Creek Approach West Side	309695.1649	610605.4802	Black	0	9	7.065	
261	Little Sable Creek Approach West Side	309695.5642	610603.0269	Black	0	12	3.14	
262	Little Sable Creek Approach West Side	309695.0084	610601.6683	Black	0	10	3.14	
263	Little Sable Creek Approach West Side	309694.5482	610601.1735	Black	0	10	12.56	
264	Little Sable Creek Approach West Side	309694.0084	610600.887	Black	0	10	28.26	
265	Little Sable Creek Approach West Side	309693.2314	610600.7541	White	0	7	12.56	10
266	Little Sable Creek Approach West Side	309692.0311	610598.1504	White	0	6	7.065	7
267	Little Sable Creek Approach West Side	309691.5635	610597.4149	Red	7.065	8	7.065	7
268	Little Sable Creek Approach West Side	309691.2373	610596.6058	White	0	9	7.065	15
269	Little Sable Creek Approach West Side	309690.9453	610595.6079	White	0	7	7.065	12
270	Little Sable Creek Approach West Side	309689.27	610595.1946	Red	7.065	7	12.56	2
271	Little Sable Creek Approach West Side	309689.0516	610594.2518	Red	19.625	13	12.56	3
272	Little Sable Creek Approach West Side	309688.3229	610593.7849	Red	3.14	12	12.56	5
273	Little Sable Creek Approach West Side	309687.5447	610593.6975	White	0	10	50.24	8
274	Little Sable Creek Approach West Side	309686.3004	610593.4254	White	0	10	12.56	25
275	Little Sable Creek Approach West Side	309685.7086	610592.6706	White	0	6	3.14	20
276	Little Sable Creek Approach West Side	309684.8513	610592.0044	Black	0	11	12.56	
277	Little Sable Creek Approach West Side	309683.4179	610591.7068	White	0	7	3.14	6
278	Little Sable Creek Approach West Side	309682.8518	610590.0926	White	0	13	0.785	6
279	Little Sable Creek Approach West Side	309681.7904	610588.4729	Red	28.26	7	19.625	2
280	Little Sable Creek Approach West Side	309679.7855	610585.5365	Red	12.56	7	12.56	5
281	Little Sable Creek Approach West Side	309678.0001	610581.4766	White	0	13	94.985	12
282	Little Sable Creek Approach West Side	309676.7191	610580.9038	White	0	12	3.14	5
283	Little Sable Creek Approach West Side	309674.8837	610580.4274	Red	19.625	4	7.065	3
284	Little Sable Creek Approach West Side	309672.781	610579.5035	White	0	7	12.56	9
285	Little Sable Creek Approach West Side	309670.7656	610579.5737	Black	0	13	0.785	
286	Little Sable Creek Approach West Side	309669.1316	610580.0247	Red	28.26	14	38.465	4
287	Little Sable Creek Approach West Side	309667.7327	610580.2895	White	0	7	7.065	5
288	Little Sable Creek Approach West Side	309666.7774	610580.3162	White	0	15	7.065	15
289	Little Sable Creek Approach West Side	309664.9378	610580.9676	Red	38.465	14	50.24	18
290	Little Sable Creek Approach West Side	309663.8043	610581.3523	White	0	5	3.14	5
291	Little Sable Creek Approach West Side	309662.4655	610581.4743	Red	12.56	7	7.065	3
292	Little Sable Creek Approach West Side	309660.9661	610581.1373	White	0	7	7.065	20
293	Little Sable Creek Approach West Side	309659.9683	610581.1816	White	0	3	19.625	12
294	Little Sable Creek Approach West Side	309658.295	610581.3581	Red	12.56	13	12.56	30
295	Little Sable Creek Approach West Side	309656.8342	610581.4594	Red	7.065	7	3.14	27
296	Little Sable Creek Approach West Side	309655.6904	610581.293	Red	3.14	7	3.14	54
297	Little Sable Creek Approach West Side	309654.4493	610581.2138	Red	0.785	7	7.065	3
298	Little Sable Creek Approach West Side	309653.3599	610581.1482	Red	19.625	12	3.14	7
299	Little Sable Creek Approach West Side	309652.5061	610581.1654	Red	19.625	10	3.14	5
300	Little Sable Creek Approach West Side	309651.4981	610581.0962	Red	7.065	10	3.14	2
301	Little Sable Creek Approach West Side	309650.7836	610580.8932	Red	12.56	11	7.065	2
302	Little Sable Creek Approach West Side	309650.3264	610580.3126	Red	7.065	6	7.065	4
303	Little Sable Creek Approach West Side	309649.5303	610579.7148	Red	12.56	7	0.785	2
304	Little Sable Creek Approach West Side	309648.9392	610579.2646	Red	7.065	8	0.785	3
305	Little Sable Creek Approach West Side	309648.2616	610578.4503	Red	7.065	9	7.065	18
306	Little Sable Creek Approach West Side	309647.7659	610577.8227	White	0	4	7.065	12
307	Little Sable Creek Approach West Side	309647.1062	610577.5637	Red	3.14	5	0.785	15
308	Little Sable Creek Approach West Side	309646.4612	610577.6049	Red	12.56	6	12.56	2
309	Little Sable Creek Approach West Side	309646.1406	610576.6429	Red	19.625	11	7.065	2
310	Little Sable Creek Approach West Side	309645.3357	610576.2622	Red	7.065	8	7.065	1
311	Little Sable Creek Approach West Side	309644.3775	610575.5038	Red	28.26	8	7.065	2
312	Little Sable Creek Approach West Side	309643.1431	610574.2829	Red	38.465	8	12.56	2
313	Little Sable Creek Approach West Side	309642.0047	610573.7211	Black	0	18	176.625	
314	Little Sable Creek Approach West Side	309640.7107	610573.6854	Red	0.785	5	3.14	2
315	Little Sable Creek Approach West Side	309639.0313	610573.8719	Black	0	11	28.26	
316	Little Sable Creek Approach West Side	309637.3556	610573.85	White	0	12	3.14	12
317	Little Sable Creek Approach West Side	309636.323	610573.5898	White	0	15	0.785	20
318	Little Sable Creek Approach West Side	309635.0628	610573.3096	White	0	11	12.56	17

TABLE 10 - RAULERSON CANAL MANGROVES / APPROACH

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
319	Little Sable Creek Approach West Side	309634.2394	610573.0558	Red	28.26	4	12.56	2
320	Little Sable Creek Approach West Side	309633.3745	610573.0572	Red	50.24	10	50.24	15
321	Little Sable Creek Approach West Side	309632.5182	610573.123	Black	0	2	0.785	
322	Little Sable Creek Approach West Side	309631.1652	610573.3269	Red	0.785	6	7.065	3
323	Little Sable Creek Approach West Side	309629.3578	610572.2595	White	0	10	3.14	15
324	Little Sable Creek Approach West Side	309627.8694	610571.8437	Red	12.56	8	12.56	36
325	Little Sable Creek Approach West Side	309625.7378	610571.3577	White	0	4	3.14	17
326	Little Sable Creek Approach West Side	309625.0183	610570.9463	Black	0	9	7.065	
327	Little Sable Creek Approach West Side	309624.3865	610570.5454	White	0	12	7.065	15
328	Little Sable Creek Approach West Side	309623.7334	610570.8523	Black	0	13	0.785	
329	Little Sable Creek Approach West Side	309623.0338	610570.4452	Red	50.24	16	12.56	21
330	Little Sable Creek Approach West Side	309622.0924	610570.6739	White	0	18	7.065	15
331	Little Sable Creek Approach West Side	309621.3971	610570.4019	White	0	18	7.065	4
332	Little Sable Creek Approach West Side	309620.2548	610569.9789	Red	7.065	8	12.56	20
333	Little Sable Creek Approach West Side	309618.7692	610569.8057	Red	28.26	9	38.465	12
334	Little Sable Creek Approach West Side	309617.1204	610569.9857	White	0	4	38.465	4
335	Little Sable Creek Approach West Side	309613.2719	610571.4474	White	0	2	7.065	7
336	Little Sable Creek Approach West Side	309614.9818	610570.88	White	0	4	19.625	7
337	Little Sable Creek Approach West Side	309612.1724	610571.1905	Black	0	13	3.14	15
338	Little Sable Creek Approach West Side	309611.116	610571.0432	Red	200.96	22	28.26	3
339	Little Sable Creek Approach West Side	309610.2678	610570.9551	White	0	21	7.065	10
340	Little Sable Creek Approach West Side	309609.2318	610571.0809	White	0	20	3.14	8
341	Little Sable Creek Approach West Side	309607.7031	610570.8284	White	0	14	19.625	8
342	Little Sable Creek Approach West Side	309606.9873	610571.0789	Red	3.14	10	12.56	126
343	Little Sable Creek Approach West Side	309605.577	610571.9699	White	0	6	0.785	7
344	Little Sable Creek Approach West Side	309602.3969	610574.5988	Black	0	8	7.065	
345	Little Sable Creek Approach West Side	309603.8642	610574.4477	Black	0	6	3.14	
346	Little Sable Creek Approach West Side	309601.322	610574.6226	White	0	7	7.065	15
347	Little Sable Creek Approach West Side	309599.8801	610574.9355	White	0	4	19.625	12
348	Little Sable Creek Approach West Side	309598.9359	610574.9897	White	0	4	0.785	12
349	Little Sable Creek Approach West Side	309598.0967	610575.0707	Red	3.14	3	12.56	7
350	Little Sable Creek Approach West Side	309597.3995	610575.2652	Black	0	7	3.14	
351	Little Sable Creek Approach West Side	309596.5935	610575.194	Black	0	7	19.625	
352	Little Sable Creek Approach West Side	309595.9178	610574.7661	Red	200.96	25	113.04	3
236	RC Approach North Side	310148.0232	611044.6211	White	0	2	7.065	18
237	RC Approach North Side	310148.2669	611041.9624	Red	12.56	7	12.56	5
238	RC Approach North Side	310151.8249	611035.9839	Red	7.065	4	7.065	4
239	RC Approach North Side	310151.1484	611034.1441	Black	0	4	7.065	
240	RC Approach North Side	310150.2985	611032.1497	Red	0.785	3	3.14	3
241	RC Approach North Side	310149.0139	611030.4722	Red	0.785	3	3.14	24
242	RC Approach North Side	310148.3205	611029.3912	Red	12.56	7	12.56	6
243	RC Approach North Side	310147.6612	611028.1544	Red	28.26	7	12.56	3
244	RC Approach North Side	310148.39	611027.3749	Red	19.625	7	12.56	5
245	RC Approach North Side	310148.8936	611026.834	Red	0.785	4	3.14	4
246	RC Approach North Side	310150.4707	611025.8851	Red	28.26	8	7.065	3
247	RC Approach North Side	310151.6146	611025.2513	Red	3.14	6	3.14	4
248	RC Approach North Side	310152.6984	611024.6904	Black	0	9	50.24	
249	RC Approach North Side	310152.9148	611022.4469	Red	12.56	2	7.065	108
250	RC Approach North Side	310153.052	611020.2973	Red	12.56	7	7.065	4
251	RC Approach North Side	310152.9887	611019.5939	Red	3.14	5	3.14	42
252	RC Approach North Side	310152.8419	611018.8791	Red	19.625	7	3.14	4
253	RC Approach North Side	310152.1501	611017.0094	Red	7.065	5	3.14	3
254	RC Approach North Side	310152.4771	611015.9553	Red	3.14	6	3.14	4
256	RC Approach North Side	310153.2234	611014.11	Red	3.14	6	7.065	5
257	RC Approach North Side	310153.3446	611013.9166	Red	3.14	6	3.14	4
258	RC Approach North Side	310153.4909	611013.282	Red	0.785	5	3.14	5
259	RC Approach North Side	310154.3634	611012.4819	Red	0.785	6	3.14	4
260	RC Approach North Side	310155.0919	611011.7687	Red	3.14	5	3.14	4
261	RC Approach North Side	310155.1026	611010.9019	Red	7.065	7	7.065	3
262	RC Approach North Side	310155.0569	611010.1807	Black	0	8	28.26	
263	RC Approach North Side	310154.5508	611009.0952	Red	3.14	7	12.56	3
264	RC Approach North Side	310153.8858	611007.9049	White	0	6	7.065	6
265	RC Approach North Side	310154.2168	611007.1991	Red	7.065	5	7.065	6

TABLE 10 - RAULERSON CANAL MANGROVES / APPROACH

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
266	RC Approach North Side	310154.5739	611006.9801	Red	7.065	5	3.14	4
267	RC Approach North Side	310155.5357	611006.4092	Red	12.56	7	7.065	5
268	RC Approach North Side	310156.6252	611006.1556	White	0	5	3.14	3
269	RC Approach North Side	310157.9233	611005.5461	White	0	4	7.065	2
270	RC Approach North Side	310160.4314	611004.2632	Red	19.625	9	12.56	6
271	RC Approach North Side	310161.3543	611003.6259	Red	7.065	5	3.14	3
272	RC Approach North Side	310160.1938	611001.4002	Red	12.56	8	7.065	4
273	RC Approach North Side	310159.434	610999.8526	Red	7.065	3	3.14	3
274	RC Approach North Side	310160.4343	610998.8501	White	0	2	7.065	3
275	RC Approach North Side	310161.5455	610998.1953	Red	28.26	8	7.065	3
277	RC Approach North Side	310162.25	610998.7342	Red	38.465	8	7.065	2
278	RC Approach North Side	310162.6544	610998.7852	Red	3.14	5	3.14	2
279	RC Approach North Side	310163.0758	610998.8098	Red	7.065	5	3.14	4
280	RC Approach North Side	310163.7628	610998.8206	Red	12.56	4	3.14	4
281	RC Approach North Side	310164.6587	610997.0216	Red	0.785	7	3.14	4
282	RC Approach North Side	310165.0148	610995.5501	Red	0.785	5	3.14	2
283	RC Approach North Side	310165.6276	610994.154	Red	28.26	8	12.56	3
284	RC Approach North Side	310166.0344	610994.0324	White	0	7	7.065	1
285	RC Approach North Side	310166.5268	610993.841	Red	0.785	6	3.14	2
286	RC Approach North Side	310166.9011	610993.6568	Red	0.785	7	12.56	3
287	RC Approach North Side	310167.2586	610993.4637	Red	3.14	7	3.14	6
288	RC Approach North Side	310167.5483	610992.1362	White	0	1	19.625	5
289	RC Approach North Side	310168.6267	610991.4165	Red	0.785	4	3.14	3
290	RC Approach North Side	310169.9836	610990.4935	White	0	9	0.785	7
291	RC Approach North Side	310170.2292	610990.262	Red	0.785	6	7.065	2
292	RC Approach North Side	310170.6288	610989.5982	Red	3.14	7	7.065	2
293	RC Approach North Side	310171.7226	610987.617	Red	7.065	6	3.14	2
294	RC Approach North Side	310172.1816	610987.2856	Red	3.14	8	3.14	2
295	RC Approach North Side	310172.626	610986.7221	Red	3.14	6	7.065	9
296	RC Approach North Side	310172.9787	610986.2507	Red	0.785	7	0.785	3
297	RC Approach North Side	310173.3414	610985.788	Red	7.065	5	7.065	2
298	RC Approach North Side	310173.768	610985.4078	White	0	8	12.56	2
299	RC Approach North Side	310174.0005	610985.0173	Black	0	7	7.065	
300	RC Approach North Side	310174.0725	610984.5563	White	0	7	19.625	2
301	RC Approach North Side	310174.11	610984.0212	White	0	9	12.56	3
302	RC Approach North Side	310174.141	610983.3917	Red	0.785	7	3.14	2
303	RC Approach North Side	310178.1235	610983.1758	Red	0.785	6	3.14	2
304	RC Approach North Side	310181.2438	610981.3144	White	0	12	38.465	2
305	RC Approach North Side	310184.7059	610980.1795	Black	0	5	7.065	
306	RC Approach North Side	310187.9407	610977.9108	Red	0.785	2	3.14	2
1	RC Approach South Side	310098.8719	611063.1364	Red	113.04	15	33.16625	4
2	RC Approach South Side	310099.3294	611064.2379	White	0	8.5	19.625	4
3	RC Approach South Side	310099.8397	611065.3457	Red	200.96	15	113.04	6
4	RC Approach South Side	310100.1303	611066.801	White	0	10	12.56	1
5	RC Approach South Side	310100.7095	611068.1978	White	0	12	19.625	5
6	RC Approach South Side	310102.0526	611070.4854	Black	0	18	176.625	
7	RC Approach South Side	310104.0531	611073.144	Red	254.34	15	50.24	4
8	RC Approach South Side	310105.0161	611075.3712	White	0	8	28.26	15
9	RC Approach South Side	310107.2594	611081.3421	White	0	8.5	176.625	8
10	RC Approach South Side	310107.7804	611082.716	Red	379.94	25	254.34	35
11	RC Approach South Side	310108.342	611084.501	White	0	6.5	38.465	8
12	RC Approach South Side	310108.6996	611085.1019	White	0	10	50.24	27
13	RC Approach South Side	310109.2338	611086.1225	Red	7.065	7	3.14	3
14	RC Approach South Side	310110.7785	611087.5404	Red	28.26	12	7.065	7
15	RC Approach South Side	310110.8689	611088.5751	White	0	15	12.56	5
16	RC Approach South Side	310110.6425	611094.9811	Red	15.89625	4	7.065	12
17	RC Approach South Side	310111.2323	611095.6606	White	0	6	3.14	5
18	RC Approach South Side	310113.5642	611098.3446	Black	0	12	50.24	
19	RC Approach South Side	310115.7831	611103.7596	Red	4.90625	5	0.785	6
20	RC Approach South Side	310117.8557	611109.6	White	0	9	132.665	6
21	RC Approach South Side	310117.2098	611111.9566	Red	78.5	10	28.26	8
22	RC Approach South Side	310119.5938	611115.0652	White	0	18	44.15625	15
23	RC Approach South Side	310121.008	611117.4713	White	0	11	9.61625	13

TABLE 10 - RAULERSON CANAL MANGROVES / APPROACH

Number	Location (Approach/Footprint)	Easting	Northing	Species (Black, White, or Red)	Prop Root Coverage (ft^2)	Height (ft)	Aerial Coverage (ft^2)	Extension Into Canal (ft)
24	RC Approach South Side	310121.0608	611118.6052	White	0	12	7.065	18
25	RC Approach South Side	310119.6356	611123.3394	Red	38.465	9	19.625	6
26	RC Approach South Side	310119.7712	611124.3659	White	0	10	12.56	8
27	RC Approach South Side	310120.7119	611127.2606	White	0	15	78.5	25
28	RC Approach South Side	310122.2245	611128.971	White	0	6	7.065	5
29	RC Approach South Side	310122.8449	611130.608	Black	0	20	200.96	
30	RC Approach South Side	310123.9304	611132.1216	White	0	19	78.5	15
31	RC Approach South Side	310125.9609	611140.1368	White	0	20	28.26	25
32	RC Approach South Side	310127.9701	611141.8886	Red	9.61625	5.5	3.14	3
33	RC Approach South Side	310128.2187	611144.7452	White	0	22	176.625	8
34	RC Approach South Side	310130.2556	611145.9928	Red	12.56	8	9.61625	4
35	RC Approach South Side	310131.2624	611146.8941	White	0	18	50.24	18
36	RC Approach South Side	310133.0441	611148.4716	Red	38.465	8.5	63.585	6
37	RC Approach South Side	310134.3708	611156.5769	Black	0	5.5	3.14	
38	RC Approach South Side	310136.2426	611164.0995	White	0	7	314	5
39	RC Approach South Side	310136.5549	611167.3683	Black	0	15	44.15625	
40	RC Approach South Side	310137.3141	611169.8709	Black	0	11	50.24	
41	RC Approach South Side	310155.1993	611199.7008	White	0	12	19.625	15
42	RC Approach South Side	310157.3683	611202.6193	White	0	18	176.625	15
43	RC Approach South Side	310159.3591	611206.0134	White	0	18	19.625	4
44	RC Approach South Side	310165.3991	611211.6414	Red	113.04	20	176.625	5
45	RC Approach South Side	310165.8651	611215.5308	White	0	12	9.61625	6
46	RC Approach South Side	310168.8621	611219.5897	Black	0	18	63.585	
47	RC Approach South Side	310178.4016	611223.7472	Red	23.74625	5	19.625	3
48	RC Approach South Side	310182.5209	611227.4032	White	0	10	113.04	18
49	RC Approach South Side	310184.3681	611229.8032	Red	200.96	9	314	3
50	RC Approach South Side	310189.8684	611236.6459	Black	0	10	9.61625	
51	RC Approach South Side	310198.0123	611240.5507	Black	0	22	176.625	
52	RC Approach South Side	310199.2118	611241.6956	Red	12.56	4.5	7.065	4
53	RC Approach South Side	310204.3554	611242.9446	Black	0	3.5	78.5	
54	RC Approach South Side	310206.9487	611246.8965	White	0	13	12.56	8
55	RC Approach South Side	310211.7338	611250.683	Black	0	7	19.625	
56	RC Approach South Side	310219.5482	611254.6031	White	0	4	12.56	10
57	RC Approach South Side	310225.483	611255.0776	White	0	5	50.24	15
58	RC Approach South Side	310228.7852	611266.7243	White	0	4.5	33.16625	6
59	RC Approach South Side	310230.4618	611268.5185	White	0	28	113.04	18
60	RC Approach South Side	310241.9095	611271.9908	Black	0	12	176.625	
61	RC Approach South Side	310244.3507	611274.8553	White	0	12	28.26	10
62	RC Approach South Side	310246.948	611277.6	White	0	3	78.5	10
63	RC Approach South Side	310250.7225	611281.7806	Red	379.94	25	254.34	42
64	RC Approach South Side	310253.3564	611285.6029	White	0	10	113.04	20
65	RC Approach South Side	310259.8784	611291.0832	White	0	9.5	176.625	12
66	RC Approach South Side	310261.3429	611295.1827	White	0	15	7.065	10
67	RC Approach South Side	310267.1207	611296.0692	White	0	22	200.96	8
68	RC Approach South Side	310268.9221	611299.5041	White	0	6	28.26	25
69	RC Approach South Side	310272.6249	611300.5414	Red	452.16	12	314	6
70	RC Approach South Side	310275.6938	611307.4717	White	0	10	314	10
71	RC Approach South Side	310284.1303	611317.5796	White	0	12	15.89625	20
72	RC Approach South Side	310284.0209	611319.5601	White	0	12	12.56	10
73	RC Approach South Side	310283.6611	611322.9455	White	0	12	9.61625	8
74	RC Approach South Side	310285.5834	611325.3761	White	0	13	19.625	8
75	RC Approach South Side	310289.5218	611345.7709	Black	0	15	9.61625	
76	RC Approach South Side	310289.6055	611359.4005	White	0	12	56.71625	5
77	RC Approach South Side	310292.7014	611362.3553	White	0	6.5	12.56	6